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THE

NEW YORK

MEDICAL JOURNAL.

A

WEEKLY REVIEW OF MEDICINE.

EDITED BY
FRANK P. FOSTER, M.D.

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VOLUME LXI.
JANUARY TO JUNE, 1895, INCLUSIVE.

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FIG. 1.

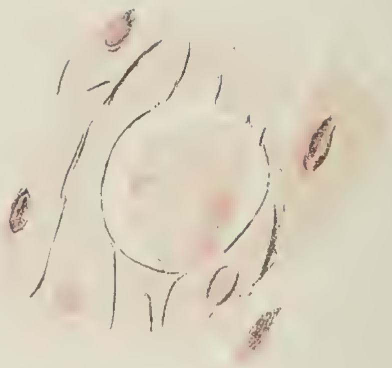
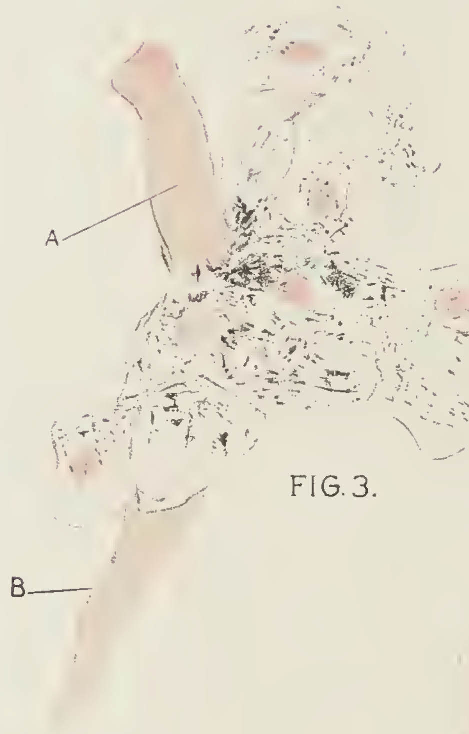


FIG. 2.



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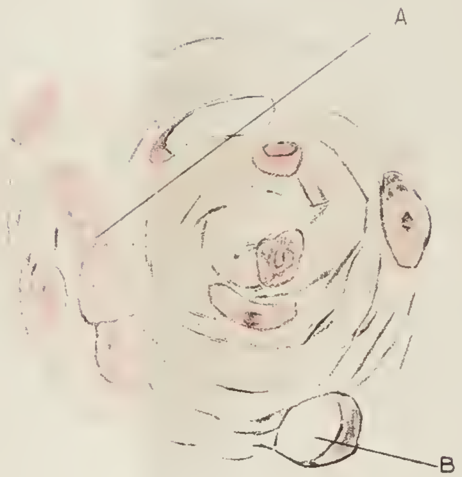

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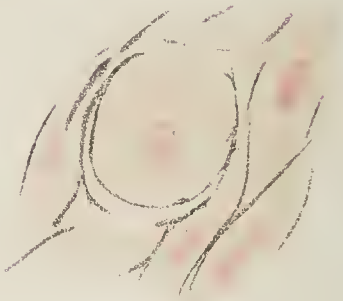

FIG. 5.

FIG. 6.

FIG. 7.

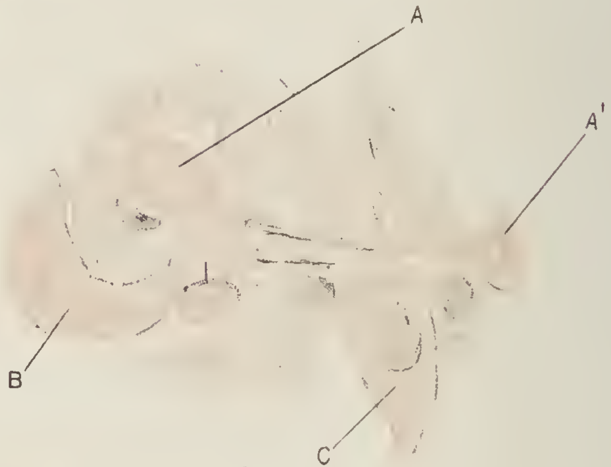

FIG. 8.

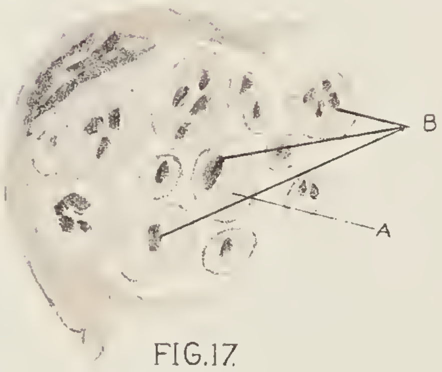

FIG. 17.

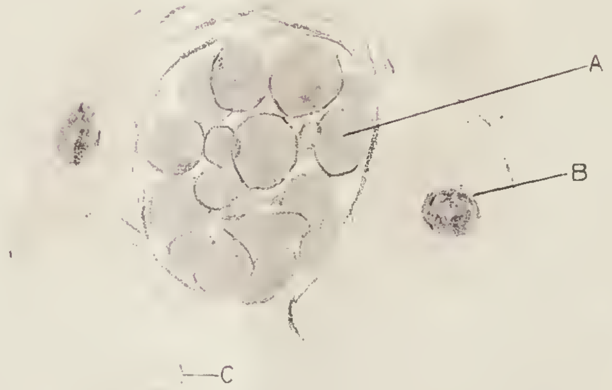

FIG. 9.

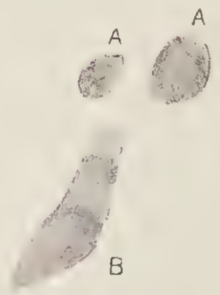

FIG. 11.

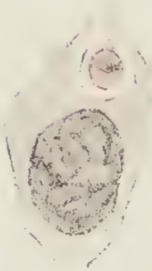

FIG. 16.

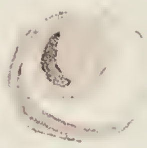

FIG. 14.

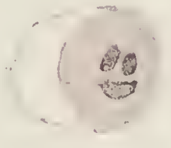

FIG. 13.

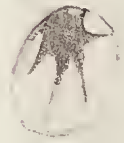

FIG. 15.

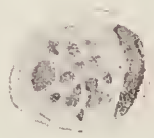

FIG. 10.

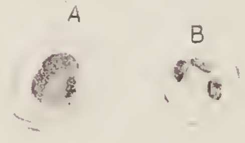

FIG. 12.

DR. ALLEN J. SMITH'S ARTICLE ON THE ÆTIOLOGY OF CANCER.

OCT 8 —

THE NEW YORK MEDICAL JOURNAL, January 5, 1895.

Original Communications.

THE ÆTIOLOGY OF CANCER,
WITH ESPECIAL REGARD TO THE PROTOZOAN PARASITES OF CANCER.*

By ALLEN J. SMITH, M. D.,
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PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF TEXAS.

Time has not proceeded more than a single generation since the most advanced scientific medical writers were satisfied to regard among that group of formations known as tumors a number of decidedly important neoplasms which have since, because of almost positive proof of their parasitic origin, been assigned to a separate position in the classification of pathological products. Even at the present day there are pathologists who continue to classify these two groups, the infectious granulomata and the tumors, as closely related—as they are, at least in many of their peculiarities; yet the appreciation of the ætiology in the one case and the failure of any realization of the causation in the other constitute so decided a distinction, reaching into almost every aspect of their nature, relations, and treatment, that the more modern view can scarcely be held precipitate in thus separating processes such as tuberculosis, syphilis, leprosy, and actinomycosis, from the true tumors, enlargements of whose cause no actual knowledge is held. The impulse given to continued research in similar lines by the discovery of the nature of the infectious granulomata was early sufficient to call attention to the analogies presented by the cancerous and sarcomatous groups of tumors to this class of neoplasms; and these have been within the past several years the center of intense attention from microscopists bent upon establishing their parasitic origin and their recognition as members of the same class of new growths. These similarities consist especially in the histology and clinical course of the growths. The essential features of the histology of the infectious granulomata consist of a central group of epithelial like cells, surrounded by a greater or lesser zone of lymphoid cells, together with a variable connective-tissue stroma. These may vary considerably in the individual examples, and do vary somewhat as to the relations and characteristics of the elements in the different forms of the granulomata. It would require no great imaginative effort to regard the cancerous nodule, with its epithelial cells imbedded in a variable stroma of connective tissue, the whole surrounded by a greater or less amount of embryonal connective-tissue elements in various stages of organization, as conforming to the same type as does the smaller gray tubercle. Nor, on the other hand, would it be difficult to regard the sarcoma as the result of a specific cause leading to the production of the lymphoid elements of the same type, the epithelioid elements being greatly in the minority and perhaps overlooked, or so altered in their characteristics as to be indistinguishable from the embryonal connective-tissue cells which form the tumor. It is certainly suggestive of a difference between tubercle and cancer that the former, typifying the infectious granulomata, should reach a definite stage of degeneration, while no such necessary occurrence can be recognized in the case of the cancers; nevertheless, the well-known fact of the long persistence of the fungus-like variety of tubercle and the rather frequent degenerative accident in case of cancer are conversely suggestive of their similarity. These differences depend, moreover, largely, perhaps, upon anatomical relations with a blood supply which might easily be influenced by generically unimportant differences in structure, such as the amount and kind of stroma in each case. The fact that the epithelioid cells of cancer seem from histological appearances to be true epithelium, arising and growing from apparently normal epithelium, and that no such connection can be demonstrated in case of the epithelioid cells of the tubercle, should not seriously militate against the possible generic similarity of these formations, judgment being based rather upon the similarity of results than upon the apparent differences of origin. The peculiarities of metastasis, perhaps best seen in the miliary forms of both cancer and tubercle, add a further link to the chain of similarities between these formations.

One need not seek far for further suggestion of an infectious nature in cancer, although it must be confessed that the proof of such infecting power can not by any present means be more than probably predicated. The fact of its special prevalence in localities of greater or less restriction (Park, *Medical and Surgical Reporter*, February 18, 1893; Arnaudet, *L'Union méd.*, October 7, 1891; *Med.-surg. Bull.*, June, 1893; Fiessinger, *Gaz. méd. de Paris*, March 5, 1893: *Rev. de méd.*, January 10, 1893; Williams, *Med. Chron.*, February, 1893; *Lancet*, September 12, 1891, etc.), scattered here and there over the world, strongly suggests that there are operative causes other than mere structural ones, and that these causes are such as operate the body from without. The corporeal distribution of primary cancers, at orifices and points of constriction of epithelia tubes, the lips, pharynx, pylorus, ileo-cæcal valve, anus, cervix uteri, vulva, or base of the bladder, or at parts easily handled, as the mammæ or the general surface of the body, may without great effort be interpreted as suggestive of the origin of the growth from abrasions and subsequent inoculation with an infectious agent, although it is quite true that a very different interpretation may be given the same circumstances of position. The hereditary influence which popularly and professionally has been so generally accorded cancerous growths; the instances of apparent infection related by medical writers (Fiessinger, *loc. cit.*; Arnaudet, *loc. cit.*; Guelliot, *Jour. de méd. et de chirurg. prat.*, March, 1893); the experiments of Hanau (*Wiener medizinische Presse*, April 21 to June 9, 1890), Wehr (*Annual of the Univ. Med. Sci.*, vol. iii, 1890), Moran (*Amer. Med.-surg. Bull.*, June, 1893), von Langenbeck, O. Weber, Lebert, and others, in transplantation of epitheliomatous formations to animals or among animals; of Nayet (*La France médicale*, June 16, 1893) in inducing epitheliomatous growths in animals by injecting a glycerin extract of epitheliomas of man; and of

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* Read before the Pathological Section of the First Pan-American Medical Congress, Washington, September 7, 1893.

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Hahn, von Bergmann, and others (*La Prat. méd.*, June 30, 1891; Cornil, *La Semaine méd.*, June 24, 1891; *Med. Press and Circular*, August 5, 1891) in grafting cancers to different parts of a cancerous patient's body—all stand in closest relation with the belief in the infectious nature of the growth, proof being, however, wanting.

The possibility of a parasitic origin of cancer, as well as of other new growths, was suggested years ago by Paget (*Surgical Pathology; Brit. Med. Jour.*, 1887), who likened the growths produced upon trees by the stings of insects or by the deposition of the ova of insects to these tumors of animal structures.

While there have been at various times (Brault, *Arch. gén. de méd.*, 1885, ii, 586; Rappin, *Comptes rend. de la Soc. de biol.*, 1887; Scheurlen, *Deut. med. Wochensch.*, 1887, No. 48; Senger, *Deutsch. med. Wochensch.*, 1888, No. 14; Baumgarten, *Ctrlbl. f. Bakteriol. u. Parasitenk.*, 1888; Rosenthal, *Zeitsch. f. Hygiene*, 1888; Kubasoff, *Wiener med. Presse*, 1890, No. 31, etc.) described vegetable micro-organisms as the specific causes of cancer, the failure of confirmation and the discovery in several instances of the same micro organisms in non-cancerous tissues have resulted in the practical abandonment of belief in a bacterial cause, although it is generally accepted that various bacteria may be present as parasitic incidents in cancer.

The apparent protozoan nature of certain bodies in epithelial formations, such as *molluscum contagiosum*, described originally by Virchow (Virchow's *Archiv*, Bd. xxiii, p. 149), and by a number of investigators since then (Rivolta, *Dei parassiti vegetali*, Turin, 1878; Bollinger, Virchow's *Archiv*, Bd. lviii; Neisser, *Vierteljahrschft. f. Dermatologie*, 1888, xv, 553; and others), and in Paget's disease of the nipple (Hutchinson, *Trans. of the Pathol. Soc. of Lond.*, 1890, 214; Darrier and Wickham, *Archives de méd. expér.*, etc., 1890, i, 1, ii, 47; *Ann. de derm. et de syph.*, 1 and 11; *Maladie de Paget*, Paris, 1890; Bowlby, *Brit. Med. Jour.*, May, 1891, p. 1070; etc.), suggested, moreover, the likelihood of the existence of similar bodies in the allied cancerous formations; although there was no lack of opposition to the belief that the bodies seen in molluscum and subsequently in cancerous tumors were of parasitic nature.

In 1888 Pfeiffer (*Zeitsch. f. Hygiene*, 1888; *Die Protozoen als Krankheitserreger*, 1890, zweite Aufl., 1891) called attention to certain bodies he had observed in the cells of the tumor masses of two cases of general carcinosis; these he described as sporozoa, in their development resembling the microsporidia. The following year Malassez and Albarran (*Comptes rendus de la Soc. de biol.*, 1889; *Les tumeurs de la vessie*, Paris, 1892) announced their discovery of bodies resembling *Coccidium oviforme* in the cells of an epithelioma of the jaw. Thoma (*Fortschr. der Med.*, June, 1889) described about the same time small cell like structures he had observed in the nuclei of the epithelial cells of glandular cancers of the rectum, breast, and stomach, bodies measuring from four to fifteen micromillimetres in diameter, rounded or oval or somewhat of the shape of pseudonavicellæ, usually occurring in groups of five or six. The nuclei of the cells in these cases refused to stain well with hæmatoxylin and eosin, safranin, alum-carmin, and other reagents employed, and were apt to show numerous vacuoles, empty or containing the parasitic bodies or a little granular matter. The following year Sjöbring (*Fortschr. der Med.*, 1890, No. 14), who had been studying the processes of nuclear division in a cancer of the breast, noticed certain bodies resembling protozoa, and after careful examination decided such to be their nature. The life history which this author attributes to these bodies is briefly as follows: Small round masses of protoplasm, two micromillimetres in diameter, may be met with free in the tissues or within the cell protoplasm. One of these bodies, for example, penetrates the nucleus of a cell, gradually increases in size, and then passes into the cell protoplasm, where it may remain for a variable time, a slightly granular mass of protoplasm surrounded by a clear zone, but without a cell wall. It may escape entirely from the cell and be found free in the tissue spaces at this period. Eventually, however, it enters an epithelial cell, becomes surrounded by a membrane, and at maturity nearly fills the host cell. Small curved rods, surrounded by bright, hyaline matter and presently becoming encapsulated, develop within the parasitic body—twenty or thirty in number—giving rise to the appearance of a sporocyst. These spore-like bodies after a time escape from the parasite and enter fresh cells to undergo the same cycle. Sjöbring was unable to demonstrate a nucleus in these bodies, and for this reason, and from the various appearances presented during the history of the organisms and their evident method of reproduction by sporocyst formation, places them among the sporozoa and probably in the class of the microsporidia. The author states that he found these bodies in six out of seven cases of cancer of the breast which he had examined and in two cancers of other parts of the body.

These descriptions of Thoma and Sjöbring found corroboration shortly in publications by Balbiani (Virchow's *Archiv*, Bd. cxv, H. 1), Hacke (*Comptes rend. de la Soc. de Biol.*, 1890), Wright (*Address at the University of Toronto*, 1890), Ströbe (*Beiträge z. path. Anat. u. allg. Path.*, 1891, xi, 1), and to a certain extent in papers by Steinhaus (Virchow's *Archiv*, Bd. cxxvii, H. 1, and Bd. cxxvi, H. 3), Foà (*Ctrlbl. f. Bakteriologie u. Parasitenk.*, Bd. xii, p. 185), Soudakewitch (*Ann. de l'Instit. Pasteur*, 1892–'93), Podwyssozki and Sawtschenko (*Ctrlbl. f. Bakteriol. u. Parasitenk.*, Bd. xi, p. 93), Kürsteiner (Virchow's *Archiv*, Bd. cxxx, H. 3), and others. Of the more recent writers Soudakewitch found in the cells and cell nuclei, of glandular cancers especially, small round or oval bodies, sometimes with a membrane about them. By special hardening with osmic acid and subsequent staining in hæmatoxylin these bodies may be seen surrounded by a clear or granular or rayed zone. If homogeneous, they take the stain but faintly, while the granules or rays surrounding them take a deep hue. Metschnikoff, who had opportunity to examine these preparations, states in a note added to the paper that these bodies are probably coccidia, judging from the appearance of the envelope and its protoplasmic contents. Podwyssozki and Sawtschenko fail to note the parasitic bodies within the cell nucleus, but have in the instances studied found numerous examples in the cell body. The second of these writers, Sawtschenko (*loc. cit.; ibid.*, Bd. xii, No. 1), describes the following appearances which he was able to demonstrate in sections of a cancer of the lip in large numbers: The cell protoplasm of some of the cancer cells presented one or more vacuoles, some of which were empty and which may have been the former resting places of protozoa. In some of these vacuoles were to be seen small rounded bodies, sometimes provided with a deeply staining mass suggesting a nucleus. Often these contained corpuscles (within the vacuoles) had a prolongation, giving rise to a shape like that of a frog's larva—a frequently noted form. These frog-larva bodies were of varying size, in several instances quite large and long, apparently the wandering stage of the parasite. Thus there might be seen one of these larger, wormlike bodies passing from one epithelial cell to another, or lying between the cells. After thus penetrating an epithelial cell the parasite seems to assume slowly the rounded shape, pushing the nucleus of the cell off to one side, and presently becoming inclosed within a membrane apparently derived from itself. Occasionally several such resting forms may be witnessed lying side by side, surrounded by a separate or by a common capsule. Gradually in this rounded, resting stage the central portion seems to stain more deeply, as if of nuclear nature, and about the margins, especially without the capsule, appear small, round, highly shining corpuscles like spores. Presently within each of these as they increase in size appear deeply staining masses, single or double, rounded, oval, or spindle-shaped. As these sporelike bodies develop about the margin of the parasite the capsule of the latter becomes less clear, apparently giving up its substance to the growth of the spores; and within the body of the parasite there appear a large number of similar protoplasmic masses. The whole mass is now very similar to the sporocyst stage in the development of sporozoa, save that the capsule of the cyst is wanting. What becomes of all these supposed spores is uncertain; some probably pass from the vacuolated cell and pursue their life history elsewhere in the body of the infected individual. Some, at least, continue to develop at the site of their formation, swelling out the host cell to its greatest capacity, pushing off the nucleus to one side and often compressing it into an insignificant size. Constantly the marginal spores develop in advance of the central ones. Eventually each of these spores forms from the nuclearlike body in its interior a frog larva-like body, which probably then makes its way into the interior of a fresh cell, assumes the resting form, and goes through a similar cycle. Besides these stages in the life of a seeming sporozoon, Sawtschenko describes what has probably been observed by other writers and interpreted by them as examples of endogenous cell formation—small epithelial-like cells within the host cell, probably the physaliphora of Virchow. The contained cell is somewhat more granular than the protoplasm of the host, and sometimes shows a very delicate meshwork in its substance. It contains a nucleus usually staining deeply, and sometimes a nucleolus. Apparently a further stage of the same kind of body is such a contained cell with two or four crescent-shaped bodies in the interior, strongly suggestive of the pseudonavicellar stage in the life history of the sporozoa. The author is unable to indicate clearly the relationship between these and the first-described bodies which entered into the formation of the sporocysts, but the presumption is that such a relation does exist, and that the crescents in some way develop into the wormlike body of the wandering form. The strong likeness of this last, the wandering form, of the cyst form, and of the pseudonavicellar form, to the growth of sporozoa is almost convincing of the parasitic nature of these bodies. It should be recalled that a very positive difference exists between the descriptions of Sawtschenko and Podwyssozki, on the one hand, and of Soudakewitch on the other, in that the former did not find any intranuclear forms as did the latter and others. Foà's (*Ctrlbl. f. Bakteriol. u. Parasitenk.*, Bd. xii, No. 6) descriptions are very analogous to those of the writers quoted and need not be more carefully reviewed. More recently Korotneff (*Ctrlbl. f. Bakteriol. u. Parasitenk.*, Bd. xiii, Nos. 11 and 12), describing the appearances encountered in a cancer of the lip (asserting, however, his observations of similar organisms in cancers from other positions), corroborates the statements of Soudakewitch, Podwyssozki and Sawtschenko, and a number of other investigators, but adds that he is persuaded that neither of these writers has brought forward the fully developed form of the protozoon. This fully developed stage he describes as a gregarine-like body of some length, too long to be contained in an ordinary cancer cell, having a thickened head and extended body. In the neighborhood lie in the cancer cells smaller, round or oval forms, younger forms, of the parasite, coarsely granular, containing nuclei, multiplying by fission and distending the host cell, causing by pressure from a center the concentric bodies of the squamous epithelioma and producing a certain amount of degeneration in the immediate vicinity. When not afforded sufficient nutriment these bodies fail to develop, become encysted, and are decidedly coccidiform in appearance. In the interior of these develop bodies called "zooids" by the author, which, escaping from the coccidiform bodies, pass into other cells and go through the regular gregarinoid cycle. Besides these ordinary zooids, what the author terms "sporozooids"—falciform bodies—are also to be found, composed of a granular mass of protoplasm surrounded by a hyaline wall. Such a body, after escaping from the host cell, fastens itself (the protoplasmic portion at least) to the surface of a new epithelial cell, thrusting out projections like those of an amœba; others of the same kind are to be found in the tissues about the epithelial part of the tumor.

Ruffer and Walker (*Brit. Med. Jour.*, 1892, vol. ii, p. 113; *Jour. of Pathol. and Bacteriol.*, October, 1892), who in England have followed up the work upon the cancer protozoa, and who at first were unable to demonstrate the intranuclear form of the parasite, fully confirm the work of the continental workers, in that the former about the close of the past year (*Brit. Med. Jour.*, November 5, 1892) announced his discovery of this variety and adds that he "has seen every stage in the life history of the protozoon of cancer, from the time when the parasite appears as a spore in the nucleus to the time when it leaves the latter as a young, fully formed parasite." Galloway (*Lancet*, No. 5, 1893) has recently affirmed his belief before the Royal College of Surgeons in the protozoan nature of the various bodies described on account of their apparently organized structure, their distinctive staining reactions, and their analogy to well known protozoa. Kürsteiner (Virchow's *Archiv*, Bd. cxxx, H. 3) has announced that he has found bodies corresponding to the descriptions of the above-named writers in a papilloma of the bladder and in papillary adenomata of the uterus.

Not all of the investigations into the question of the existence of animal parasites in cancer, however, have been productive of favorable comments from their authors. There are those who have denied totally the parasitic character of the appearances described by the authors quoted, and who would explain the phenomena mentioned entirely upon the ground of cellular degenerative changes or of changes induced by faulty or special methods of technique. There are, too, those who, while acknowledging the similarity of the bodies to sporozoa, deny that sufficient evidence has been adduced to warrant a belief in their parasitic nature. Thus, van Heukelom (*Ctrlbl. f. pathol. Anatomie*, 1890, p. 704), from a study of over two hundred tumors, while able to find the bodies in question, was of the opinion that their smaller forms might easily be explained by the idea of cell degeneration—perhaps leucocytes with fragmentation of their nuclei. The larger bodies might perhaps be epithelial cells of peculiar shape, although he did not believe them to be necessarily degenerated cells. Borrel (*Arch. de méd. expérim. et d'anatom. pathol.*, ii, p. 786, 1889), preceding the latter writer, also mentions the two groups, the small intracellular bodies and the large forms of the supposed parasites. The former, the younger, the coccidian forms of those favoring the idea of parasitism, he would regard as examples of endogenous cell formation; and the second, the forms corresponding to the sporocyst stage of the parasites, he believes to be derived from the tissue elements of the cancer by some peculiar cellular degeneration. So, too, Firket (*Ctrlbl. f. allgemein. Pathol. u. pathol. Anatomie*, 1890, No. 20) objects to the belief in the protozoan nature of these bodies because he has seen similar appearances in the epithelium of the skin covering a fibroma where no evidences of cancer were present. He believes that from pressure by the tumor these bodies had been produced through degenerative changes. The idea of cellular degeneration as explanatory of these various appearances is also sustained by Schütz (*Mikroskopische Carcinombefunde*, Frankfurt, 1890; *Münch. med. Wochensch.*, 1890, No. 35), Török and Tommasoli (*Monatsh. f. Dermatologie*, 1890, No. 4), Klebs (*Deutsch. med. Wochensch.*, 1890, Nos. 24, 25, 32), Delépine (*British Medical Journal*, September 9, 1892), Duplay and Cazin (*Seventh Congress of Hygiene and Demography*; Cazin, *Arch. gén. de méd.*, January, 1892; Duplay, *Gaz. des hôpitaux*, 1893, p. 210), Ribbert (*Deutsch. med. Wochensch.*, 1891, p. 1179), and recently by Gibbes (*Amer. Jour. of the Med. Sci.*, July, 1893). The last-named investigator has contributed a valuable addition to the literature antagonistic to the parasitic theory of cancer origin. Believing it impossible to prove the various so-called parasitic bodies to be distinct elements of protozoan nature at the present time by any but staining methods, he sought to find some differentiating reagent capable of distinguishing the supposed parasites from the tissue cells of the animal body. Employing the well known *Coccidium oviforme* from the liver of a diseased rabbit as the control, he produced a test stain * giving the parasites the desired difference of hue from that given the epithelial cells of the organ when the tissue had been hardened by the ordinary alcohol method. In sections of various cancerous growths hardened in the same manner and stained by this method, Gibbes was unable to demonstrate the parasites, although after hardening the same tissues in bichloride-of-mercury solution, Müller's fluid, and in several other solutions, the appearances of protozoan bodies were easily appreciable. He concludes from this that the supposed protozoa of cancer are no more than the results of faulty methods of hardening. Further study and confirmation of these results of Gibbes are exceedingly desirable at this stage of our knowledge, although it is of course possible that even the failure to take a stain, except under conditions of previous hardening by special reagents, may be due to peculiarities inherent to the supposed micro-organisms. Cornil (*Jour. de l'anatom. et de la physiol.*, 1891, No. 1), Hansemann (Virchow's *Archiv*, Bd. cxxiii, H. 3), and others hold forth the possibility of mistaking various stages of cellular division for these supposed sporozoa. Ströbe (Ziegler's *Beiträge*, 1891, xi, H. 1) and Steinhaus (*Ctrlbl. f. allgem. Pathol.*, 1891, No. 2) admit that some of the bodies to be found in the cancer cells are extremely suggestive of protozoa, and are inclined to believe that in some cases at least they are real protozoa; but do not accept for that reason the belief that they are an ætiological factor of the tumors. Steinhaus, in a second paper (Virchow's *Archiv*, Bd. cxxvii, H. 1), distinctly denies the protozoan nature of the bodies described in the center of the "pearls" of squamous epithelioma, attributing them to cellular changes; and in the same journal Virchow adds a note reiterating his original views of the endogenous formation of these bodies and their want of ætiological significance.

Besides the supposed animal parasites which have attracted attention, Russell has recently (*Brit. Med. Jour.*, December 13, 1890) described as the real cause of cancer a body which he believes to belong to the fungi. This body, because of its affinity for acid fuchsin, he speaks of as "the fuchsin body," and states that it may be found with but few exceptions in cancer and in no other structures. These fuchsin bodies occur in groups of two, three, four, or more, generally have a clear space about them, and are bounded by a capsule, are spherical in shape, measure from four to twelve micromillimetres in diameter, and are homogeneous and structureless in appearance. Russell states that they appear to grow by gemmation and are found in the rapidly growing parts of the tumor. Numerous writers, however, have shown that these bodies are by no means characteristic of cancer, and less attention is at present paid the claims of the last named investigator than those of the writers above mentioned (Ballance and Shattock, *Brit. Med. Jour.*, March, 1891; Dean, *Lancet*, April 6, 1891; Duplay and Cazin, *loc. cit.*; Rennie, *Austral. Med. Gaz.*, March, April, May, 1893; etc.).

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* The stain is thus made: Dissolve 2 c. c. of aniline oil in 10 c. c. of rectified spirit; add enough distilled water to make 100 c. c.; filter; add 2 grammes of rosaniline sulphate. Label No. 1. Stain No. 2 is a one-per-cent. solution of iodine green. Leave sections in stain No. 1 for ten minutes; wash them in water, then in alcohol; place them next in stain No. 2 until a dull purple color is assumed. Wash thoroughly in water, dehydrate in alcohol, clear in cloves, mount in xylol balsam.

Attracted by the evident sincerity of the writers describing the various suspected parasites in cancerous tissues, as well as influenced by a long-existing faith in the eventual discovery of some such parasitic cause for carcinomatous and sarcomatous tumors, the writer was led to carry on a series of examinations in the same line, with the purpose of confirming or denying the views already advanced. From the results of these observations it is not possible to definitely assert or deny the correctness of the views of the older observers, however, and they may only be offered as additions to a growing study. The general impression, however, gained from these examinations is not unfavorable to the belief in the presence of protozoa in cancers, and has only added to the confidence of the writer in the ultimate success of those seeking to demonstrate the general features of the protozoan theory of cancer causation.

It is scarcely likely that all the appearances described as parasites will bear the test of continued observation, and it is just as improbable that the full list of these organisms has thus far been announced. From the writer's experience he is led to regard the most of the minute, intranuclear bodies, the rhizopod-like inclosures in the pearls of squamous epithelioma, the amœboid bodies of Korotneff, as well as the fuchsin bodies of Russell, as being of cellular origin, degenerative in nature. The larger, intracellular and extracellular bodies, the various appearances of sporocyst formations, the peculiar double-contoured coccidiform bodies, the gregarine-like bodies, the bodies containing falciform and pseudonavicella-like corpuscles, and the bodies in the so called physaliphora—these seem scarcely to be denied from our present knowledge, yet the proof of their veritable protozoan nature is not possessed.

The various forms of these parasites encountered by the writer bear the greatest similarity to the bodies described by Podwyssozki, Sawtschenko, and Korotneff, and it seems probable that the last-named observer is correct in his statement that if they be protozoa these bodies should be classed (at least some of them) among the gregarinidæ. It seems quite likely, however, that there exist several varieties, some of which are coccidia, and others perhaps rhizopods. Thus the specimen presented in Fig. 8 can scarcely be otherwise interpreted than as a rhizopod in the process of gemmation, and it is possible that some of the amœboid bodies of Korotneff may belong to the same group (if they really exist as parasites). To the more important question as to their nature, Are they really independent organisms, are they parasitic bodies? there is but one argument to be offered in answer—the analogies they present to known stages of the life history of recognized species of protozoa. On the other hand, there are grave reasons for doubt—the evident mistakes of a number of writers in relation to some of the forms described, the failure of such stains as that of Gibbes to differentiate these bodies from the cells of the structure in ordinarily prepared tissues, and the long list of acknowledged possibilities of mistake. Nevertheless the similarities to known protozoa are sufficiently strong to make one disposed to accept some of these corpuscles as independent beings, possibly the causative factor of the tumor in which they occur.

Twelve growths were examined, all hardened by the ordinary alcohol methods or entirely in absolute alcohol. Of these, three were epitheliomata of the lip, two of the penis, one of an inguinal gland secondary to an epithelioma of the vulva, one a fungating epithelioma of the breast, two glandular cancers of the breast, one a cancer of the uterus, one a cancer of the testicle, and one a cancer of the prostate. These tumors were stained either with hæmatoxylon, hæmatoxylon and eosin, borax-carmine, alum carmine, or safranin. Of these the specimens stained with hæmatoxylon and those with safranin presented the most easily recognized and most numerous examples of the supposed parasitic bodies. It may have been from faults of preparation, especially of hardening and fixation, that these bodies in the specimens examined were less numerous than one would imagine from perusal of the writings of the continental investigators. Foà, it is true, has called attention to the fact that one should not expect to find swarms of protozoa in every portion of a specimen, and states distinctly that he succeeded only in a limited number of specimens and only in isolated portions of the preparations. The writer has repeated this experience. Although in most specimens there are numbers of appearances which future study may perhaps show to be parasites, yet fairly suggestive and convincing examples are by no means found in great numbers and often require prolonged search in well-studied preparations.

Of these twelve specimens, in three—a cancer of the breast, a cancer of the prostate, and an epithelioma of the penis—the sought for bodies were not found; and of the remainder, the individual specimens varied considerably in their relative frequence of exhibition of the so-called parasites. The most commonly observed variety of these phenomena was that of a single intracellular, round or oval mass, sometimes distinctly contained in a space (Fig. 7), again completely filling (Fig. 10) the vacuole in which it occurred. Such a mass usually measured from eight to fifteen, twenty or more micromillimetres in diameter, was more or less granular, and sometimes contained (Fig. 10) a large number of deeply staining, round, oval, or falciform "clumps." At times the greater portion of the epithelial cell was occupied by such a body, which generally was stained slightly more or less deeply than the protoplasm of the cell. These differences in the intensity of coloration probably depend in a measure upon the age of the parasite, the older specimens taking the stain less readily than the more actively developing bodies. The protoplasm of such a body is generally somewhat more granular and refractive than that of the host cell. Occasionally, instead of these intracellular bodies being single, there may be found a large group in one cell. Similar bodies are to be found between the cells of the tumor in the lymph spaces, and occasionally in the structures away from the epithelial portions of the cancer. The large numbers of hollow cells (Fig. 4), with their nuclei flattened out and pushed to one side by pressure, so as to create the "seal-ring" appearance, are often doubtless to be regarded as the former resting places of these intracellular bodies, the granular detritus often to be seen in these vacuoles being probably the remains of degenerated parasites. In but one or two instances (Fig. 7) were the cell-like bodies, interpreted as examples of endogenous cell formation by certain writers, encountered. From our present views of cellular origin it seems unlikely that such an interpretation can be entertained, and from negative evidence at least one can assert their probable parasitic nature. Sawtschenko in his description of the sporocysts to be seen in cancerous formations states that these arise from the intracellular bodies, in which he recognizes the frequent presence of a nuclear body. This was not, however, observed in the cases examined by the writer. The intracellular bodies, save those last described, were non-nucleated; and in no instance was there a cyst-formation observed within the cellular limits (unless the occasional occurrence of a group of intracellular bodies as above described be regarded as examples of sporocyst formation). Excellent examples of sporocysts (Fig. 9) were found a number of times, in all of which there could be easily shown a distinct membranouslike wall to the cyst. The sporelike bodies within these cysts were very like the intracellular bodies in structure and in coloration, but differed in the individual cysts as to whether there could be found the small, deeply staining interior masses. These deeply staining contents, usually few in number, from their frequent arrangement in pairs are suggestive of active reproduction by fission and are probably the germinal portions of the containing body (Fig. 17). In none of the specimens examined, probably on account of the intensity of the staining, could a structure be recognized in these contained masses, which look much like drops of some hyaline, deeply stained substance. The claim that these clumps are masses of chromatin is not to be gainsaid, but the fact that they have a decidedly deeper hue than the small chromatin masses in the epithelial nuclei somewhat sustains the belief that they are not of cellular origin. Within the sporocysts the spore bodies are found, ten, twenty, thirty, forty, or more in a mass, like minute hydatids (Fig. 9). They are faintly granular, quite variable in size, round, flattened, and spindlelike in shape, the differences probably depending upon circumstances of pressure within the cyst. The wall about these bodies is distinct and clearly cut on the inner surface, and is apparently re enforced on the outside by adjacent flattened cells of the tumor, and by an occasional bit of connective tissue. It will be recalled that in the descriptions of Podwyssozki and Sawtschenko the intracellular sporocysts showed the spore formation as an exogenous production at first, the spores developing in size so that the larger were constantly seen on the borders of the mass, the capsule of which early disappeared from view. It is possible that the writer has failed to recognize these cyst formations until they had developed to such a stage that the epithelial host cell had been entirely absorbed along with the original cyst membrane; yet in that event it seems quite as singular that the very clear cyst wall observable in some of the specimens examined should have been undescribed by these authors. Rather would it appear that two distinct appearances have been noticed, and further study will be required to indicate their relation.

Besides the intracellular bodies and the sporocysts, the gregarinelike body (Figs. 1, 3, 4, and 11) was one of the most readily recognizable appearances when present. It was observed in three of the specimens examined—an epithelioma of the lip stained with safranin, an epithelioma of the penis stained with borax-carmine, and a fungating epithelioma of the breast stained with hæmatoxylon. This body, not recognized by any of the writers quoted save Sawtschenko and Korotneff, is spoken of by the latter as the "*rhopalocephalus*" of cancer, from the thickened anterior extremity. This form of the supposed parasite is an elongated, wormlike body, varying in the instances studied from about twenty micromillimetres to double that length. The anterior end is rounded, not as thickened as Korotneff describes in his specimens, and usually contains a small amount of granular matter and a few masses of a deeply staining substance. The individuals observed in the epithelioma of the penis had a head not unlike that of a minute tapeworm, the opposite end terminating in a rather blunt point (Fig. 1). The interior of these bodies was structureless, granular anteriorly, hyaline about the borders and toward the posterior extremity. No nucleus was observed in any of these. It might doubtless be objected that these gregarinelike forms are but peculiarly shaped epithelial cells, devoid of a nucleus, and perhaps slightly altered in their constitution, this alteration having caused them to take on the staining reagent in the slightly different degree observed. This may be true; but the frequent occurrence of the described shapes and the occurrence of such an apparent conjugation as shown in Fig. 4 lead one to considerable confidence in their parasitic nature. So, too, one can not definitely say that the appearances presented by the sporocysts and their contents are not due to some cellular change, a number of cells in one locality undergoing contemporaneous alteration to the production of a material similar to hyaline substance; yet in this case it is scarcely likely that the contents of the spore bodies should be so arranged as to suggest multiplication rather than fragmentation, or that such falciform and spindle shaped masses (suggestive of the pseudonavicella stage in the development of the gregarines) should be assumed by degenerating elements. The same argument must be presented in case of the ordinary intracellular body. In but a single instance has the writer been satisfied to accept any of the bodies observed as showing the double contour of the true coccidia; and never has there appeared to him any suggestion of the segmentation as described so clearly by Korotneff, Foà, and others. The failure of these forms, however, as well as of the intranuclear bodies, may depend on differences in the technique of preparation. It is not necessary, however, to accept these to fill out the probable life-history of this supposed parasite, which the author is disposed to class among the gregarines. If this conjecture be correct, it is interesting to note that the gregarine of cancer is the first gregarine parasite of man, if not of the vertebrates generally. Frequently found in the invertebrates, the gregarines have in vertebrate parasitism given place to the coccidia and perhaps the micro- and myxo-sporidia.

The fully developed parasite, for which Korotneff's term, *Rhopalocephalus carcinomatosus*, may be tentatively accepted for want of a better, after a variable period of wandering probably takes a permanent position between the epithelial cells (or perhaps within a cell whose substance then forms the wall of the cyst) and gradually contracts to assume the round or resting form (Figs. 2, 5). It is probable that before the assumption of this spherical shape conjugation (Fig. 4) takes place, the occasional discovery of several such round bodies within a common capsule (as noted by Sawtschenko) being in evidence of the verity of such a supposition. It is not impossible that the contained cells in the physaliphora above described may represent the intracellular occurrence of this resting stage of the developed parasite. From the protoplasm of this rounded body within its substance are next formed small, round or oval, refractive, hyaloid masses, which grow rapidly and distend the wall of the host cell or the wall formed about the parasite lying between the cells; thus is given the characteristic appearance of the sporocyst stage. These small masses or spores continuing to grow apace, within them appear the active germinants, the pseudonavicellæ of this gregarine, the round, oval, spindle, or crescent shaped, deeply staining "clumps." Either before or after the appearance of these last the cyst wall of the sporocyst may have ruptured from distention by the increasing size of the spores, and the latter then pass away as free bodies to enter new cells or continue within the lymph spaces. Many of these, if one may infer from the large number of empty vacuoles and vacuoles containing granular *débris* in the cancer cells, perish or remain indifferent for an indefinite time. But from a few the germinal masses probably proceed by direct or perhaps by indirect and at present unknown stages of growth to the fully developed gregarine—then to undergo the same cycle.

The writer is not disposed to accept Korotneff's amœboid stage, which is logically correct, it is true, but which, if the similar appearances seen in the specimens examined by the writer (Fig. 15) are identical, are almost surely the result of protoplasmic change and contraction. So, too, the small, intranuclear bodies should not be unhesitatingly accepted. They may be of protozoan nature, yet the very great possibility of mistaking mitotic figures or masses of altered chromatin, and the absence of necessity for their presence in the life scheme of the parasite, have seemed to be sufficient reason for their rejection for the present.

Among the cells and occasionally within the cells stained by eosin, an acid aniline dye, may be found numerous bodies which, from their shape, size, appearance, and position, the writer suspects are identical with the fuchsin bodies of Russell. If this supposition be true the writer must deny the parasitic nature of these fuchsin bodies. Entire cells conforming exactly to their original shape may here and there be seen having the same peculiarity of coloration and evidently composed of the same matter. The nature of the change is apparently a hyaline degeneration, and such a view is in strict confirmatory relation with the opinions published by several English and continental investigators into the nature of Russell's parasites.

Whatever else has been said, however, in relation to the subject, these two facts stand out in bold relief, and these may be offered as the writer's conclusions: (1) *Cancer presents a course and clinical aspect analogous to those of formations of parasitic origin.* (2) *Within cancerous tissues occur bodies which closely resemble the different life stages of protozoa, of sporozoa, of gregarinidæ.*

That further study is necessary goes without saying, and that that study may be of the greatest value it should be of the most extended character, both as to the methods of study and the tissues studied. New methods of staining, efforts at differentiation under all conditions of previous preparation of the tumors, the examination of tumors from all parts of the body and from individuals all over the world, the examination of tumors other than the strictly cancerous and of normal structures—all this is demanded, as well as the pursuit of the great desideratum, a culture method for the purpose of the growth and isolation of the protozoan parasites, if the subject is to be conclusively decided.

Explanation of Plate.

Fig. 1. *a*, Gregarine form of parasite; *b*, epithelial cell; *c*, gregarine form with apparent flagellum. From epithelioma of penis, stained with borax-carmine. Half-inch hom. oil-immersion lens, oc. 4, Zeiss.

Fig. 2. Hyaline body lying among epithelial cells in a space—stained slightly deeper than cells, possibly the resting form of the gregarine. Same specimen and same amplification as above.

Fig. 3. Gregarine form of parasite among a group of epithelial cells; *a*, apparently anterior, and *b*, apparently posterior end. It could not, however, be told surely if *a* and *b* are continuous, the cells and granular matter obscuring the supposed central portion of the body.

Fig. 4. Concentric nest from epithelioma of lip stained with safranin: *a*, gregarin form, apparently in conjugation; *b*, vacuolated cells.

Fig. 5. Same as Fig. 3.

Figs. 6 and 7. Epithelial cells from secondary epithelioma of inguinal gland; stain, safranin. Fig. 6, showing small intranuclear body (?); Fig. 7, showing rounded hyaline body in vacuole of cell.

Fig. 8. Group of cells from epithelioma of lip; stain, safranin: *a*, rhizopodlike body, apparently giving origin by gemmation to a new body, *a'*; *b*, possibly a second similar body; *c*, epithelium.

Fig. 9. Sporocyst lying between epithelial cells in a cancer of testicle; stained with hæmatoxylon and faintly counterstained with eosin: *a*, deeply stained, probably relatively young spore bodies; *a*, epithelium; *b*, red blood cells introduced for comparison of size and hue with spore bodies.

Fig. 10. Same specimen. Intracellular body with deeply staining interior masses (possibly pseudonavicellæ).

Fig. 11. From an epithelioma of breast, stained with hæmatoxylon and lightly counter-stained with eosin: *a*, spore bodies lying free in spaces (probably after escaping from spore cyst); *b*, gregarine form.

Fig. 12. Same specimen. Cells containing possible pseudonavicellæ.

Figs. 13 and 14. Same specimen. Sporelike bodies apparently within remnants of epithelial cells and containing pseudonavicella-like masses.

Fig. 15. Appearance simulating Korotneff's amœba form; apparently due to vacuolation and destruction or contraction of protoplasm of an epithelial cell.

Fig. 16. Epithelial cell containing two small sporelike bodies in a vacuole.

Fig. 17. Ruptured sporocyst, showing escape of spore bodies which are apparently older than in Fig. 9, as shown by their fainter hue and by their containing numerous pseudonavicella-like bodies.

THE DIFFERENTIAL DIAGNOSIS OF TRAUMATIC INTRACRANIAL LESIONS.

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(*Continued from vol. lx, page 815.*)

The Extent to which Traumatic Lesions Aid in the Determination of Centers of Functional Control.—The present study of intracranial lesions has been, up to this point, independent of their relation to special areas of functional activity. The question consecutively arises as to the possibility of connecting symptoms with the seat of injury in accordance with known laws of cerebral localization. The difficulties in obtaining clinical confirmation of the inferences derived from physiological experiment, which have been recognized in the examination of idiopathic disease, are exaggerated in case of the complicated lesions of traumatic origin. The number of cases in the series which I have collated is sufficiently large to have a certain value, either positive or negative, in determining how far such a relation exists. It is conceded that a motor zone, contiguous to the Rolandic fissure in the human brain and analogous to a similar area experimentally demonstrated by comparative physiologists, has been heretofore abundantly verified by observation of both idiopathic and traumatic lesions. This is also sufficiently illustrated in the cases which I have described, though in a relatively small proportion of their whole number, since violence, even when inflicted upon the vertex, is so generally transmitted to the base, where its limited destructive effect is exerted, that the motor region is likely to escape from injury. The general and local paralyses which follow the functional or structural impairment of the motor centers are so well understood that further reference to them as they have occurred in my own cases may be properly omitted.

A much larger proportion of the cases which I have instanced relate to injuries sustained by regions of the brain in which function has been less successfully studied in the light of clinical observation. These have presented symptoms which are to a certain extent diagnostic, and at the same time incidentally confirmatory of views of cerebral localization founded upon physiological induction.

No part of the brain has been so frequently involved in fatal injury as the frontal lobes. They have been lacerated in more than one third of all the cases which I have subjected to necropsic examination. It is evident that unconsciousness or delirium attends any form of lesion situated in any region of the brain; but mental disorder or decadence, apart from these, has been supposed to be dependent upon a definite and limited structural alteration, and assumed to be of the prefrontal convolutions. The influence of direct frontal injury in so many cases upon the integrity of thought or its manifestations can hardly fail to be of assistance in determining the accuracy of this localization.

The series of one hundred and thirty necropsies includes forty-nine instances of laceration of one or both frontal lobes. In twenty-three cases morbid mental conditions had been inappreciable through unconsciousness, which was both primary and permanent. In the remaining twenty six mental changes were observed in nineteen. An examination of the seven cases of frontal laceration which were without mental derangement shows that one, in which early symptoms were not obtainable, involved both lobes; the other seven were confined to the right side; so that, in practically every instance, every one with a history in which the left lobe was lacerated, there were evidences of mental default or aberration. The special manifestations of disordered intellect which they presented have been outlined in individual histories and scarcely require repetition in detail. Loss of memory, especially of the fact, manner, or circumstances of injury, confusion of ideas, inability of comprehension, incapacity of mental concentration, incoherence, fixed or transitory delusions, apathy, hebetude, or stupor, were of constant occurrence, singly or in combination with each other. A condition of mental confusion and incoherence with delusions, which occurs at a late period, is often confounded with the early delirium of cortical irritation. The lacerations were not always of the same character, situation, or extent. Five had led to almost complete subcortical disintegration, eight of the cortical injuries were confined to the base, and the others, wholly or in part, were upon the antero-superior surface. In one instance the interior of both lobes was practically destroyed. The symptoms held some relation to the nature and extent of the lesion; in the subcortical excavations there was in each instance abrogation of mental power, rather than an aberration in its manifestations. The patient's condition was noted at the time in the several cases as "sluggish," "apathetic," "without sign of intelligence," or as "apparently devoid of power of comprehension." It was generally characterized by torpidity and indifference. In the cortical injuries, in place of comparative default of intelligence, there was incoherence, perverted memory with delusions, or the stupor which comes from confusion of ideas and mental indifference; the mind was alert to external impressions, though they were not always rightly comprehended. It is a noticeable fact that in a large proportion of cases the superficial injuries were upon the inferior surface, which has been classed as a latent area. The distinctions which I have made in the mental condition, as it follows cortical or extensive subcortical laceration, are broadly drawn, but I believe will be found to be justified in an examination of the cases which I have cited.

The converse proposition that frontal laceration alone, of all traumatic conditions, occasions a direct loss or derangement of intellectual function, independent of delirium or unconsciousness, is only a little less absolutely true. In the same series of one hundred and thirty necropsies death had been preceded by such deficiency or derangement in four instances in which this injury was not disclosed. In one of these, a case of gunshot wound of a parietal lobe, some slowness of comprehension was the only mental symptom aside from a hysterical melancholia which had led to a suicidal attempt; this may be properly excluded, as mental disease existed before the reception of injury. In each of the other three mental disorder and subsequent decadence were well pronounced. In one, general hyperæmia and œdema were excessive, with a small hæmorrhage into the substance of an optic thalamus; in another, simple general contusion with œdema only existed; and in the third, a large localized subarachnoid serous effusion compressed the frontal lobes. The exceptional cases, but three in number, in which these lobes, though not lacerated, were still the part solely affected by a limited lesion in one and included in the general lesion in the other two, can not be said to controvert the presumptive evidence derived from physiological observation and so generally supported by the results of pathological investigation that the control of the intellectual faculties is located in this region of the brain.

The difference in the morbid mental conditions which have followed laceration, as it has affected the left frontal lobe or the right, I believe has not been suggested by physiological experiment or noted in previous observations of traumatic lesions. In every case of the present series in which consciousness was retained or regained, and in which the history was known, laceration of the left frontal lobe has been attended by intellectual aberration apart from simple delirium; in similar cases in which the right lobe has been lacerated without destructive injury of the left, there have been in their larger proportion no symptoms of mental disorder, and in the remainder there has been only stupor or active delirium, as may happen in diffused lesions and in other parts of the brain.

The examination of lacerations which involve the temporo-sphenoidal lobes has had scarcely more than a negative importance. They are forty-five in number and were attended by an aphasic condition in but a single instance. In the greater number of cases in which laceration existed, twenty eight, entire unconsciousness, the grave of so many possible symptoms, precluded its recognition. In the seventeen cases remaining it was confined to the base, a supposed latent area in eight, was unplaced in one, was an extensive subcortical excavation in three, and in four was situate in the lateral region, which includes the centers of speech. The instance of aphasia is detailed in the historical abstracts, and the essential lesion, which was purely lacerative, extended quite through the cortex of the first and second left temporal convolutions. The arachnoid was unruptured, and there was no cortical or other local hæmorrhage; Broca's convolution was unaffected. In the other cases of lateral laceration there was slight injury of the first or second convolution. None of the forty five cases, save the one mentioned, presented any symptom, unless it were a convulsion, which could be considered indicative of temporo-sphenoidal injury. In the sixty-two fatal lacerations which comprise all those in which the frontal and temporal lobes were implicated, separately or together, there was but the one instance of aphasia mentioned. In the recovering cases it will be found to have been of more frequent occurrence.

It has been assumed that hæmorrhage compressing the centers of speech is a cause of aphasia. I am compelled to dissent from this proposition, not only as contrary to the results of my own observation, but from general anatomical and pathological considerations. The compression, if exerted by a small amount of blood, must be direct and accurately applied; if it be by a hæmorrhage large enough to include these small spaces in the wide expanse of cerebral surface through which we are brought in touch with the world without, the individual default is lost in the general obscuration of all the faculties which attends the grosser injury. A pial hæmorrhage from meningeal contusion in this region is likely to be scant and diffused; a cortical hæmorrhage, if small and confined to either area in which the control of speech resides, is derived from laceration of the part itself to which as the primary and more potent lesion the result must be attributed; an epidural hæmorrhage while yet in moderate amount acts indirectly and inadequately upon the temporal or lower frontal region through the dura which acts as an efficient shield. In wounds of the middle meningeal artery, in which the effusion of blood may in time become excessive, the loss of consciousness which then ensues abrogates speech with all the other manifestations of intellectual life, and there no longer remains a question of aphasia.

I have never met with a pial or cortical hæmorrhage of local origin which suggested an interference with the integrity of speech, nor one where consciousness had been retained or restored in which blood had descended from the vertex in amount sufficient to produce this result by compression of the frontal or temporal lobe. My experience has assured me that such an event, if it happens at all, is much too unusual to justify the statement made that it is a contingency to be expected. I have seen cases of large epidural hæmorrhage in which consciousness was gradually lost before death or relief by operation, but I have never recognized aphasic symptoms at any time during their progress.

There is a case of motor aphasia attributed to hæmorrhage reported by Dr. M. A. Starr in which the patient was trephined with great benefit. The amount of blood was small and limited to the motor region. He immediately regained some power of speech, and a little later indicated some mental improvement. I have already expressed a belief that intellectual and emotional impairment is not occasioned by traumatic hæmorrhage. There were evidences of both in this case which the amount of blood discovered and removed was certainly insufficient to explain. It is necessary to assume laceration in order to account for their existence, and it seems more than probable that the same lesion occasioned the aphasia; it might readily have escaped notice in the comparatively small opening of operation, more especially if it were entirely subcortical within the visual area. The patient, I am told, after a lapse of years is still aphasic, a fact difficult to understand if dependent upon so small a hæmorrhage as described.

It by no means follows that hæmorrhage was the cause of symptoms because immediate improvement followed operation. The removal of a small portion of bone not infrequently relieves morbid cerebral conditions though the lesion remains undiscovered and unknown. Examples of successful results from operative failure in cranial surgery are as varied as the conditions which demand interference; there is one such in the present series of cases* in which traumatic convulsions of several days' continuance were immediately and permanently controlled by trephining both in the region of direct injury and at the supposed point of *contre-coup*, though nothing abnormal was discovered and nothing more was done.

I am unable to accept this case of aphasia as a result of hæmorrhage even as an exceptional phenomenon.

There are a number of instances of laceration of the cerebellum, but they can be hardly said to have afforded distinctive symptoms. It was in each complicated by other lesions, and the indications were those of laceration and hæmorrhage in general, and it might be with added localizing signals of injury to areas of which the function has been more accurately defined. If the cerebellum has any concern in the maintenance of bodily equilibrium, it is not likely to be disclosed in traumatic cases.

The pons was occasionally contused; it was hyperæmic, œdematous, or in some part studded with hæmorrhagic extravasations, varying from the size of a robin shot to an effusion a half by a quarter of an inch in its diameters; but resultant symptoms, if they existed, were merged in the general traumatism.

In some cases of injury of the medulla there were respiratory changes of importance, perhaps it might be better said, of interest, since they preceded death by so short an interval that there was no longer question of prognosis or of treatment. The constant lesion was some form of hæmorrhage causing direct compression. An extension of a hyperæmia from the pons, or even of a slight œdema, seemed to be void of effect. The symptoms were those of pulmonary œdema, cyanosis, or a marked reduction in the frequency of the respiration. The first and second might be considered characteristic after exclusion of other causes of apnœa; the infrequency of respiration when progressive and extreme is almost if not quite pathognomonic. In three instances in which the respiratory acts were reduced to no more than two in the minute, radial pulsation was continued for two and three minutes after respiration had entirely ceased, as sometimes happens after mechanical occlusion of the larynx or trachea.

The more inaccessible regions of the brain are not exempt from destructive alteration. I have described cases in which the corpus striatum, the optic thalamus, the corpus callosum, the gyrus fornicatus, or a portion of the fornix was contused or lacerated, and this was sometimes the only localized injury in the midst of general contusion. There is the same insuperable difficulty in connecting symptoms with lesions of the optic thalami or corpora striata as existed in case of the cerebellum. They are not sensitive to minor injuries, and in the severer lacerations, which I have seen extend even to practical disintegration, the patient may lie motionless and unconscious with no apparent symptoms which are not afterward explained by discovered lesions of the adjacent motor or sensory areas.

I have unsuccessfully endeavored to verify the existence of heat centers in the human brain by an examination of temperatures following intracranial traumatism, though such centers seem to have been experimentally demonstrated in the lower animals. The multiplicity of lesions, their wide extent and indefinite outline, render the results of accidental injury necessarily uncertain in comparison with the accurately limited cerebral wounds which are inflicted in vivisection. In some instances very high temperatures have attended laceration of regions which correspond to the heat centers determined by experimentation. I have at times thought that this was especially true of injuries of the frontal lobe immediately anterior to the corpus striatum, but these were always included in more extended cortical ruptures or subcortical excavation, and I have observed that large lacerations elsewhere, even in parts unsuspected of special influence upon the control or production of heat, may be accompanied by temperatures equally exaggerated. The only limited injury of the corpus striatum attended by any considerable rise in temperature was small, and was complicated by a frontal laceration quite sufficient in itself to account for the thermic condition. In another case in which there was a large extravasation into the corpus striatum, three eighths by a quarter inch in its diameters, temperature did not exceed 101°. In still another case the right corpus striatum was completely disintegrated and the left corpus striatum and the right optic thalamus lacerated, yet the temperature rose only to 102·2° in the eight hours and a half which preceded death. In an instance of extravasation into an optic thalamus with excessive general hyperæmia and œdema, in which the clot was as large as a cherry pit, though the final temperature was 105°+, there was no elevation above 100° till the fifteenth day. Lacerations of the fornix and corpus callosum were followed by much higher temperatures. Laceration of the pons in one case developed an excessively high temperature, but in others there was no unusual elevation. Cortical centers, as they have been described, are topographically too indefinite to afford data for accurate comparison of cases. I believe, however, that the highest temperatures which I have recorded have not corresponded to injuries of tissue in what I understand to be their situation. Lacerations of any part of the cortex have been attended by marked elevations of temperature, quite as great when at the base as when in the uncertain neighborhood of the "cruciate centers."

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* No. 120, original series.

The opinion which I have formed from an analysis of my first series of cases that high elevations of temperature from traumatic laceration of the brain were dependent upon general nutritive changes rather than upon lesion of limited thermogenetic or thermotaxic centers has not been disproved or modified by subsequent experience. It is impossible to predict the result of further clinical observation, but Dr. C. L. Dana's examination of intracranial hæmorrhages of idiopathic origin, in which he reaches the same conclusion, tends to confirm my belief in the correctness of my original impression.

I have been equally unable to connect the occurrence of certain circulatory phenomena with lesion of definitely limited vaso-motor centers of control. The lack of symmetry in the characters of arterial pulsation upon opposite sides of the body, which has been frequent, and the dark flush upon the face which I have noted in two cases of very different import, are to me as yet ætiologically and pathologically inexplicable.

The results of a general analysis of all the cases which I have recorded up to the present time, so far as they relate to functional localization, may be summarized in the following propositions:

1. That the control of the intellectual faculties resides in the frontal lobes, perhaps exclusively in the left, and that manifestations of their aberration or default are due to a destructive alteration which is almost invariably laceration.

2. That the control of the faculty of speech, resident in the frontal and temporal lobes, is impaired by structural alteration alone.

3. That characteristic disturbances of respiration are caused only by compression of the medulla from hæmorrhage.

4. That high elevations of temperature, while dependent in occasional instances upon diffused contusion of the brain substance, are ordinarily the result of limited lesions which are confined to no special regions or centers of control.

(4) PYOGENIC PARENCHYMATOUS INFLAMMATION.—There remains a parenchymatous inflammation of pyogenic character. It is an infrequent result of traumatism and is of limited form except when produced by the intrusion of a foreign body, as of a bullet or drainage tube. I exclude cases of infection from direct laceration which sometimes follow neglected compound fracture with wound of the dura. They are surgically unpardonable, and at the present time ordinarily due to the stupidity of the laity rather than to the carelessness of the surgeon. They afford no question of diagnosis, since the pyogenic process alike involves the brain, the membranes, and the surface of the wound, and is open to visual inspection. The few cases which have been admitted to my service were recognized without difficulty.

The infrequency of central or true abscess as a result of traumatism is confirmed by my experience, in which it has occurred but twice in a series of three hundred cases—once in the fronto-parietal and once in the parieto-occipital region beneath the angular gyrus; in both it succeeded a compound depressed fracture of the vertex without wound of the dura, and was situated at an appreciable distance from the point of cranial injury. In the first case, after elevation of the bone and some primary rise in temperature, there were no general symptoms till the twentieth day, when a few drops of pus escaped from the wound and a cavity was discovered two inches and more away from the opening in the skull. At this time there was a little mental dullness and slight facial paralysis with a scarcely noticeable elevation of temperature; recovery soon followed. In the second case the wound healed, and there were few indications of trouble beyond those dependent upon some enlargement of the cervical glands till the twenty-second day, when the patient somewhat suddenly began to suffer from acute frontal headache, became delirious, somnolent, hemiplegic, and within twenty-four hours hemianæsthetic, with unconscious and involuntary evacuations, and with infrequent pulse and absolutely normal temperature. The abscess, which was small, was discovered and drained, but death ensued sixteen hours after operation. Both cases conform to the dictum of von Bergmann that no traumatic abscess occurs without wound of the integument, and are not inconsistent with the bacteriological opinion that parenchymatous inflammation of the brain is always septic. Von Bergmann, however, is in error in his general proposition. In a circumstantial report of the second of the cases mentioned, I referred to a specimen in the collection of Dr. H. M. Biggs which in connection with its history affords conclusive evidence that an "open wound in the head or soft walls of the cranium" is not essential to the formation of a traumatic abscess. In this case a youth of seventeen was struck in the forehead by a baseball and suffered temporary unconsciousness; there was neither cranial fracture nor wound of the scalp, and in two or three days he had apparently recovered, though headache persisted. Later there was impairment of vision and eventually total blindness. His death occurred suddenly about six months after the reception of the injury. The abscess occupied the whole left frontal lobe, encroaching upon the parietal, displaced the tentorium backward, and compressed the right hemisphere. It is unnecessary to multiply instances, as a single one is sufficient to show that a possible general rule is not to be regarded as absolute. The distinction is important in diagnosis, for in a large class of cases it prevents the exclusion of a condition which always must be reckoned with as a possibility at least. I have no doubt that the external cephalic wound usually exists, and that as the shortest route by which the pyogenic germ can travel it is the one by which entrance to the brain is likely to be expected.

In the report to which I have referred I attributed the location of the abscess to a limited subcortical contusion and, as I think, demonstrated the correctness of my conclusion. Von Bergmann again errs in making a statement too positive when he denies the existence of this lesion except as a product of extreme violence, which "shatters the entire skull." Bruises and lacerated wounds of the brain are demonstrably very much more frequently superficial than subcortical, but instances both of laceration and of areas of limited contusion in its deeper structure, when no extraordinary violence has been inflicted, have been often enough disclosed in this series of cases to make it evident that if infrequent they are hardly to be considered unusual. It is rather the surface abscess, which he believes to exemplify the rule, than the central contusion and abscess which is to be considered exceptional. Pott's puffy tumor, the surface abscess, and even hernia cerebri as a factor of importance, have practically disappeared from the field of American if not of German surgery. In fact, any form of traumatic brain abscess is so exceptional that it seems idle to speak of either rules or exceptions.

The immediate cause of the pyogenic process is a question which so exclusively concerns the bacteriologist that I shall not venture to enter upon its discussion. Dr. Biggs. who commands my confidence, regards all pyogenic processes in the brain substance as of septic origin, and since the colon bacillus has been found in the product of idiopathic arachnoid inflammation I am quite prepared to believe that the streptococcus or any other germ can in some way reach the nidus formed by the bruising of the parenchyma, even though a direct route has not been opened through a cranial wound.

It is, of course, impossible to discuss symptomatology or diagnosis upon a basis of observation derived from two cases, and this study of intracranial lesions in their traumatic aspect has been confined to the results of personal experience. I call attention only to the possible relation of acute posterior cervical glandular enlargement, which occurred in the second case, to the beginning of cerebral inflammation.

The term encephalitis has been rather freely used to express a supposed result of intracranial injury. I believe that in the proper sense of the word no such condition exists. In case of any infected cranial wound pyogenic inflammation may extend through the meninges and include the cortex, or a diffuse purulent inflammation of a portion of the parenchyma may even reach the meninges, and in any acute arachnitis the contiguous brain surface may be infiltrated with cells; but anything like a concurrent general inflammation of all the cranial contents is unknown to me either from observation or from definite record. It is often held to be synonymous with cerebritis, which as a general parenchymatous inflammation, independent of the pyogenic process which I have mentioned, I regard as no less apocryphal. I have procured the minute structural examination of many hyperæmic and œdematous brains taken from patients who had survived injury for some days or weeks, but in no instance has any evidence of the inflammatory state been discovered. This result is in accordance with the opinion of Dr. Biggs which I have already quoted. I have read numerous vague descriptions of traumatic encephalitis or cerebritis, but none in which the disease was fitted to the name, or in which it was connected with precise pathological changes. I am too well aware of the danger of unqualified statements to deny absolutely that it ever exists; but, so far as I am enabled to judge, it is no more than a misapplication of words or pure assumption.

CASES NOT VERIFIED BY NECROPSY.

It seems proper at the conclusion of a summary of cases in which the value of symptoms has been established by necropsy to refer to those which by reason of recovery have been heretofore disregarded as incapable of affording positive evidence of the pathogenic condition upon which they depended. I believe no differences in symptomatology will be found to exist except in degree, and in many instances the early progress of the case is not at all indicative of the final result. There is probably no symptom which occurs in fatal cases which may not be noted in those destined to a more favorable termination, except the infrequency of respiration which follows compression of the medulla; and no other symptom which is less characteristically present, except elevation of temperature. Even in temperature the distinction is not absolute; it does not apply in cases of hæmorrhage, and only to the later stage of meningeal inflammations and of the morbid conditions occasioned by lesions of the parenchyma. Not only in the beginning but for a considerable time afterward temperature may rise absolutely higher in a recovering case than at any time in the course of one which is to end in death; but in general it is less pronounced. I have never known it to exceed 105°, and rarely to attain so great an elevation. The symptoms altogether exhibit no greater differences, as the issue varies, than obtain in other types of disease.

In illustration of the cases in which the significance of symptoms has not been demonstrated by the direct inspection of pathogenic lesions I have abstracted the histories of a certain number, of which some ended in recovery and others in death, but without necropsy. This class includes one hundred and four as yet unpublished cases, in addition to the sixty-six which appeared in my first series. Many of these are fractures of the base or vertex, or uncomplicated general contusions in which symptomatology, diagnosis, and results were so simple that they have scarcely more than a statistical value. I have selected from the remainder some which have special interest on account of symptoms which made diagnosis clear, or which occurred in such combination as to make their interpretation difficult.

Case I.—Male, aged thirty-five years, fell while dancing and struck the back of his head on the ballroom floor; no loss of consciousness, and no other indication of injury till thirty minutes afterward, when the right upper eyelid began to droop. On examination five hours later, symptoms were confined to right eye and appendages; complete ptosis, external strabismus, paresis of all the ocular muscles, imperfect accommodation, and diplopia; normal pupil and retina. At the end of eighteen months there was still some weakness of the ocular muscles, but no ptosis. The right pupil was permanently dilated.

Case II.—Male, aged twenty-eight years, received a contusion of the right parietal region, and on the second day began to exhibit symptoms which were observed at the time of examination ten days later: wide dilatation of left pupil; incomplete paralysis of all the ocular muscles and of the elevator of the upper lid of the left eye; anæsthesia of the left conjunctiva and of the mucous membrane of the left nostril, with loss of smell on that side; and intense and constant pain in all the parts included in the distribution of the fifth cranial nerve on the left side. No paralysis of the facial muscles. Some numbness of the left upper extremity. No other symptoms. Ophthalmic examination by Dr. Callan disclosed some cloudiness of the fundus and enlargement of its veins in both eyes; accommodation very imperfect. Two weeks after the injury the hearing in the left ear was lost. The patient is still under observation.

Case III.—Male, aged forty years, fell from a truck and struck upon his head; partial loss of consciousness; profuse hæmorrhage from right ear; wide dilatation of left pupil; temperature, 99·8°; pulse, 92, and respiration, 23. Second day: slight delirium; mental stupor; no response to questions; temperature, 100·8°. Third day: severe general convulsion, beginning in left arm and hand; both pupils afterward widely dilated; temperature, 100·2° to 100·6°. Fourth day: similar convulsion, but less severe; temperature, 99·8° to 100°. Eighth day: mind clear, but torpid; no recollection of an accident having occurred; speech slow and somewhat aphasic; headache and continued dilatation of pupils. Twelfth day: mental condition normal; temperature, 99°+. Discharged without further symptoms on the twenty-ninth day.

Case IV.—Male, aged sixty-five years, fell thirty feet; consciousness lost, and regained twenty hours after admission to the Presbyterian Hospital; left hemiplegia; temperature, 98°, which fell in four hours to 97°; pulse, 70 to 80; normal pupils; lacerated wound of scalp. Transferred to Bellevue Hospital eighty-two hours after reception of the injury. There was then delirium with delusions; restlessness; no recognition of changed surroundings; normal pupils and respiration; no paralysis; temperature was 100·5°; pulse, 112. For ten days continued restlessness and at times delirium, with lack of urinary control; temperature, 102·6°; pulse and respiration moderately accelerated. After that time mental condition became normal, at first only during the day, and all symptoms disappeared. Seventeen months afterward his mental and physical condition was entirely restored.

Case V.—Male, aged fifty-five years, fell unconscious in the street. On admission, profound shock and entire unconsciousness; wound of scalp in right posterior parietal region; free hæmorrhage from right ear and uniform contraction of pupils. One hour later, rigidity of left arm and, to a less extent, of left leg. Consciousness restored in twenty-four hours, and a little later the pupils became normal and the mind clear. Temperature on admission, 98°, declined to 97·4°, and rose in twenty-four hours to 99·4°; pulse and respiration normal. On the third day, temperature, 99·6°, and only psychic symptoms; mental processes a little less slow than on the previous day, but memory defective. No recollection of anything which happened after leaving home in the early morning, some hours previous to the accident; memory of words and facts equally deficient. Upon questioning, the patient said that he lived at "No. 4 in the Ninth Ward"; then remembered that it was opposite a school, which he called "skull," and finally that it was in Grove Street. On the following day he had again forgotten the name of the street, and its mention awakened no remembrance; he misplaced many words, and could not be brought to recognize his errors. A week later he had much general headache, realized that his mind had been greatly confused, and was still ignorant of all that had happened since leaving his house. He was discharged on the eighteenth day, his temperature and mental condition having been normal for several days.

Case VI.—Male, aged forty-five years, thrown from a truck in collision; admitted in shock and still unconscious; pupils contracted; temperature, 97·5°; pulse, 52; respiration, 18; twelve hours later, temperature, 97·5°; pulse, 50; respiration, 12; in fourteen hours, consciousness restored; temperature, 98°. Second day, no recollection of injury, previous occupation, or married condition. Third day, ecchymosis over right mastoid process and extending upon the back of the ear, not previously apparent. Fourth day, the patient, after much questioning and trouble, was enabled to remember his residence and occupation; temperature, 102°. During the rest of the week his temperature declined and mental condition improved, though he was still irrational and at night required mechanical restraint. In the second week he was rational at times; he was capable of expressing the generalization that a man's mind is clearer by day than at night, and described correctly the manner in which he received his hurt, though he again forgot the circumstances and denied that he had said anything about it; he was irritable and forgetful, even of the outrage to which he considered himself subjected in the taking of his temperatures; he had delusions, saw imaginary persons, and heard unreal voices, made contradictory statements about the injury which he had suffered, and was much annoyed at the attempts which were made to get from him some coherent and consistent history. Early in the third week his temperature became normal, his memory and other mental faculties were restored, and he was discharged from the hospital.

Case VII.—Male, aged forty-five years, mind impaired by alcoholic excess, fell one flight of stairs; consciousness retained, hæmatoma in left temporal region, profuse hæmorrhage from left ear, and slight epistaxis. Temperature, 98°; pulse, 90; respiration, 24. Second day, a little delirium, rigidity of both arms, and left facial paralysis, both upper and lower; temperature, 100·2°; pulse, 100; respiration, 24. Incision made through hæmatoma revealed linear fracture of left squamous portion extending into the base. In the three days following, the temperature and mental condition became normal and facial paralysis nearly disappeared. Two days later temperature rose to 100·5°, facial paralysis increased, left side of face and neck became swollen, and delirium supervened. From this time there were recurrent maniacal attacks, lasting less than twenty-four hours, in one of which he was transferred to Bellevue Hospital and soon afterward escaped. He was at a subsequent period sent to an asylum for the insane, and is now, after sixteen months, at home, but of recognized unsound mind.

Case VIII.—Male, aged thirty-eight years, fell from a second story window; unconscious and delirious on immediate admission, and in same condition when transferred from alcoholic ward to surgical service next day. Compound depressed fracture of left temporal bone, extending into the occiput between the curved lines; irregular dilatation of the pupils; internal strabismus of left eye which was afterward found to be congenital; pulse slow and full; breathing stertorous; no control of urine and fæces. The bone was elevated, and an epidural clot, which extended only toward the base, was removed as far as practicable; no discoverable dural or subdural lesion. Third day, left radial pulse fuller and stronger than the right; partial left lower facial paralysis and dysphagia. Fourth day, violent delirium. Fifth day, dysphagia and cessation of bilateral variation in radial pulse; delirium continued, with a short interval in which it intermitted. The symptoms were variable until the end of the fourth week; delirium of different grades at different times alternated with periods of quietude and rational intelligence; various delusions were more or less persistent; dysphagia, lack of urinary and fæcal control, and facial paralysis still continued. After this time mental improvement was progressive, and in the seventh week the mind was entirely clear. At the end of eight weeks recovery was complete, and twenty pounds lost in weight had been regained. The temperature on admission was 97·6°, on the second day 102°, and after operation 104·4°; it subsequently declined to normal at the end of the second week, and afterward varied from normal to 99°+. The pulse and respiration were varied, but never frequent. At the end of fifteen months he suffers no mental impairment.

Case IX.—Male, aged thirty-one years; fell two stories upon an iron beam; unconscious and delirious on immediate admission; wound above the left eye and contusion of the left shoulder; loss of urinary and fæcal control, which was not regained. Subsequently the patient was usually delirious at night and stupid during the day, and without other general symptoms; he was only once or twice able to make coherent reply to a question asked. He died in profound coma at the end of twelve days. Temperature on admission was 99°, rose gradually to 105° on the ninth day, and was 104·8° just before death. The pulse was 82 on admission and the respiration 24, and both afterward varied each day from moderate to extreme frequency.

(*To be concluded.*)

A CASE OF PEMPHIGUS CHRONICUS HÆMORRHAGICUS.

By R. S. DUBS, M.D.,
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On the 25th of October, 1894, I was called to Deerfield, a suburb of Chicago, to see a patient who had been sick for some weeks and whose ailment (as I was told) was an enigma to the physicians who had attended him. The patient, Mr. D. F., an intelligent, strongly built farmer seventy-three years of age, I found to be suffering from pemphigus.

History.—The patient assured me that nothing of the kind had ever been known in the family. His father died at sixty-two years of age of pneumonia, his mother at seventy-three years of a "stroke of paralysis." Of his six brothers and sisters all grew up to maturity. One brother died in his thirty-third year of "lockjaw," one sister in her forty-third year of a "throat trouble" which had been of long standing. The four others are still living and enjoying good health, the eldest being seventy-seven years of age. As to himself, the patient says he had measles when a child, at eighteen and thirty years of age a swelling of the glands of the left armpit. This was of short duration only, exceedingly painful, and passed away the first time upon the application of leeches, the second time under the application of poultices, neither time breaking open. In his thirty-third year he had an attack of "bilious fever." Since then, for forty years, he has not been sick. All of the patient's children, five in number, have grown to maturity and are strong, healthy men and women. In his family there has as yet been no death; all his grandchildren are living too. The patient's wife tells me that all her children were, in their first year, troubled with "eczema capitis," which in each case lasted several months. One of the sons, thirty three years of age, is troubled with a local eczema—viz., "salt rheum"—and has been from youth up.

From this history we can find no ætiological moment for the patient's pemphigus. He is a member of a healthy family, as far as can be discovered, wholly free from every so-called constitutional disease, for which the health of his own children and grandchildren give ample evidence. As to the "eczema" of his children, if it must have an hereditary ætiology, it might be found on the maternal side of the family. The acute swelling of the lymphatic glands of the axilla and his "bilious fever" surely can form no basis for assuming the existence of any constitutional disease.

The patient describes his present disease as follows: About the middle of last June (1894) he experienced a burning sensation about the navel, where, upon looking, he found a number of blisters of about the size of a white bean. In a few days he found scabs and pus there (pus cocci having most probably been introduced by scratching with the finger-nails). About a week later he noticed the same burning sensation on the back between the shoulder blades. His wife says that it looked just as if he had been scalded there, there being several blisters upon a reddened skin, and that a yellowish fluid escaped when she opened them. In July the chest was similarly affected, the symptoms always being the same—viz., a burning sensation apparently caused by blisters of from the size of a white bean to that of a twenty-five-cent piece, which burning pain was invariably alleviated by opening the blisters and applying a salve. In August the limbs were affected, the region of the large distal joints, wrist and ankle, being first attacked, and from here gradually spreading over the whole limb; and when the thighs and arms (in contrast to the forearms) had been affected, the disease spread rapidly upon the trunk. At the end of August the whole body, the scalp, the bearded parts of the face, and the mucous membrane of the mouth had been attacked, the only exempted parts being the ears, the face between the eyebrows and the mustache, the vola manus, the planta pedis, and the penis. The patient explicitly remarks that it was not until August, when the limbs had become affected, that the disease manifested the tendency to spread in continuation of the blisters already formed —*i. e.*, when a blister had been opened the skin immediately bounding it was, as he says, "lifted off," so that it practically amounted to the blisters "growing larger and larger." As to treatment, the patient pointed to a bureau top covered with bottles and several jars of salve, and remarked that within the last few weeks he had been troubled with salivation (due to mercury or to the presence of the bullæ in the mouth ?).

Status præsens.—The patient is a man of middle height, has a strong frame, well-developed muscles, and a moderate amount of adipose tissue. For seventy-three years of age he is very well kept. The face is pale, has a careworn expression, and shows signs of emaciation. The pulse is quite arrhythmic, about eighty a minute, hard—arterio-sclerosis, but no calcification—of moderate height. There is no fever temperature. Upon examining the organs of the chest I find the lower boundary of the lung in the right mamillary line in the seventh intercostal space at the top margin of the eighth rib. All over the chest, upon auscultating, *rhonchi sonori et sibilantes—volumen pulmonum auctum.* The valvular tones of the heart are clean, the second pulmonary tone is sharply accented. The rhythm of the heart-beats is very irregular. The urine is of a light yellow color, not exceeding 1,200 to 1,400 c. c. a day, has a specific gravity of 1·027 to 1·029, is clear and of a weak acid reaction. A small amount of albumin is present; tests, boiling and addition of acetic acid, and potassium ferrocyanide + acetic acid; no sugar; urobilin and bile pigment tests negative. There is a satisfactory motion of the bowels daily and the patient's appetite is good. As to the nervous system, the right pupil is permanently larger than the left, but both react promptly upon light and accommodation. The knee reflexes are present and slightly increased in intensity. The sensibility of the skin shows no changes from the normal. The appearance of the patient when stripped of his salved cloths was pitiable indeed. The color of the skin varied from a pale yellow to a bright, glossy red, very many parts being of a dull bluish, almost leaden color. The cubital regions—*e. g.*, covering the lower third of the arm and the upper third of the forearm—presented a bluish, livid color, the skin being rough, dry, covered with fine scales, some scabs, and bullæ varying in size from that of a white bean to that of a silver dollar, which were flaccid, half filled only, and wrinkled. The outskirts of this discolored region of the elbows were not sharply delineated, but passed more or less imperceptibly into the reddish, slightly inflamed-appearing skin surrounding it. Upon the thorax there were blotches of the size of a dollar bill wholly devoid of epidermis, many large flaccid bullæ, and some round ones of the size of a nickel five-cent piece, almost hemispherical in shape, well filled, giving signs of considerable tension; besides these eruptions and denuded parts very many scabs, some superficial, reminding one of impetigo, some high in the center, with the edges turned up, often showing several layers, and of a dark, red-brown color, reminding one of rupia. The legs presented an appearance similar to that of the arms, discolored about the knees; from here, extending up and down, scattered vesiculæ and bullæ of the two kinds above mentioned, and scabs. The patient held the arms flexed in the elbow, and the legs bent somewhat in the knee. The parts affected were the scalp, forehead, bearded parts of the face, mucous membranes of the mouth and palate, neck, trunk, and limbs, the only parts wholly exempt being the soles of the feet, the penis, the palms of the hands, the face between the eyebrows and the mustache, and the ears. The parts most affected were the hyoid region of the neck, the chest over the sternum, the umbilical region, the skin over the oval tendon of the cucullaris, the lower parts of the thorax over the angles of the ribs, the nates, the regions of the trochanters, the flexor side of the thighs over the projecting hamstring tendons, the knees, the extensor side of the ankle joints, the elbows, and the flexor side of the wrists. The patient says that while he was still up the scrotal regions caused him great discomfort. More or less common to all these affected parts is a decided discoloring of the skin between the scabs and bullæ, mostly of a dull, livid character. Wherever this coloration is present, the patient says there have been " a number of successive crops of blisters." Besides these parts affected, which were more or less continually exposed to mechanical irritation, there was an unmistakable symmetry to be noticed in some cases—*e. g.*, large bullæ just in the middle of the extensor surface of the thighs, a symmetrical distribution of the eruptions upon the forearm (extensor side) and upon the chest and abdomen. I could not but be impressed by this apparent symmetry, where mechanical irritation could hardly be accepted as the immediate cause.

The eruptions were of two kinds. They arose in a very short time, often within the space of an hour. Those of one kind were flaccid, irregular in shape, the uplifted epidermis wrinkling somewhat as though only in part distended with fluid, and varying in size from that of a white bean to that of a dollar bill. Even if they were small, by gentle pressure their size could readily be increased, the contents, as it were, burrowing farther under the epidermis. Their color was dependent upon the color of the skin upon which they stood, varying from a pale yellow and a bluish, leaden tinge to a bright red. The bullæ themselves were well nigh translucent, except where a greater amount of blood was to be found in them. The contents were fluid, but clotted if caught up. Under the microscope would be found red blood-corpuscles, sometimes more, sometimes fewer, many white corpuscles, and frequently shapeless masses of detritus. After removing the raised epidermis the rete Malpighii, presented a very different appearance, and to me it seemed clear that the appearance of the intact bullæ was largely dependent upon the condition of this stratum. Where the skin had an apparently normal color the Malpighian layer was a uniform red, not glossy (showing little moisture), and very little blood oozed through. Here, if properly treated, the surface would soon regain its normal appearance. Where that bluish, leaden color prevailed, this discoloration would be found after removing the epidermis. But here the process of healing was slow, a suppurating surface invariably presenting itself. Where the skin had a bright red color, was hot to the touch, and tight (apparently put on the stretch), here, after removing the epidermis, would appear a red, glossy, blood-bespotted surface; and in these cases a scab was quickly formed.

Now, apart from these flaccid, irregularly shaped bullæ there was a second kind. These were always round, well filled almost hemispherical in shape, never larger than a twenty-five-cent piece, averaging the size of a nickel five-cent piece, and were of about the consistence of a lipoma. Upon opening them little or no fluid escaped, the contents being a jellylike mass. It was necessary to cut them off the skin, so this mass adhered to the Malpighian layer. The contents invariably presented a dark-brown color. By applying pressure their size would not increase. The microscope showed the presence, in this jellylike mass, of a network of fibrin (it dissolved readily in dilute acetic acid) in whose meshes were very many red blood-corpuscles, these exceeding by far the number of white corpuscles, many with more than one nucleus. The white blood-corpuscles varied greatly in size, some being in a state of disintegration. There were also reddish masses of detritus here and there. I should like to call attention to the fact that while the covering epidermis was still *intact*, before any lesion of the same could be detected, the contents of these bullæ would present this semi-solid consistence and hæmorrhagic appearance; and that the scab, which I shall now describe, would be formed *without* the bulla having been opened or its having burst open (this latter never happened with them to my knowledge). The scabs which would form, if they were left to themselves, would be dark brown, high in the center, tapering toward the periphery, which in time turned up; and then a continual exudation from under the scab took place, its center being tightly adherent nevertheless. In time they would present the appearance of layers, much reminding one of rupia. If these bullæ were at once cut off or removed with the scissors, the scab formed would not differ at all from those formed upon the sites of the flaccid bullæ, and would present all the characteristics of an impetigo. Upon the thorax, abdomen, and back, between the bullæ and scabs (often the surface upon which they stood) the skin at places had a bright-red color and glossy appearance, and was infiltrated, hard, and hot, and such places were bounded by a distinctly visible (because of its red color) and palpable wall. This zigzag wall bounded such a surface, extending, with very irregular projections, over the umbilical, hypochondriac, and mesogastric regions of the abdomen and chest, and over the back about from the inferior angles of the scapulæ to the iliac crest on one side, on the other extending over the nates to the thigh. Within the boundaries of this wall the parts not affected by eruptions showed a fine-scaled desquamation (as though strewn with small scales) much reminding one of pityriasis, with all the other characteristics, however, of *erysipelas*. In one case the wall extended directly across a large space denuded of epidermis, dividing it into two parts. There was no fever, and I could not conclude that the patient suffered more burning here than elsewhere. If it was erysipelas, it surely was of much later date than the pemphigus. I may remark that during the first week of treatment it wholly disappeared.

Therapy.—Internally I gave 4½ grains of quinine hydrochloride three times a day during the first week, later twice a day only; and arsenious acid in compressed tablets once a day after dinner, beginning with 0·046 of a grain and quite rapidly increasing to 0·15 of a grain a day, which dose I continued some weeks.

Externally I applied warm baths (of 95° F.), with an addition of bichloride of mercury, at first an ounce to the bath, later two ounces. While the patient was in the first bath I, with pincette and scissors, removed all the scabs and uplifted epidermis. This took two hours and a quarter. The temperature of the water was kept between 95° and 104° F., and the patient received repeated small doses of brandy. By gentle pressure with a soft towel the patient's body was dried, and then a very free application of Wilson's salve (somewhat modified) was made, the salve being thickly spread upon cloths and the body and limbs wrapped therewith. The formula was: Powdered benzoin, 15 parts; zinc oxide, 85 parts; lard, enough to make 500 parts. This consistence of the salve pleased the patient best. Whenever the cloths were dry and tended to adhere, it was renewed, first, however, powdering freely (especially the whole surface of the trunk) with the following: Amyli oryzæ, 100 parts; pulv. alum. plum., 20 parts; zinci oxid., 5 parts. Every newly appearing eruption was at once removed (epidermis cut off with scissors, not merely pricked open), the exposed surface freely powdered, then thickly covered with the salve. The alumina caused some smarting, wherefore it was not applied upon such extended surfaces as were laid bare after the first bath. The baths were repeated every fourth day. As soon as the affected parts were healed up, two-per-cent. salicyl-vaseline was freely applied to make the skin pliable. As a gargle a five-per-cent. solution of chlorate of potassium was used.

Under this treatment the patient rapidly improved, the skin assumed a healthy color, all that redness and lividity passed away, the parts denuded of epidermis being again covered, leaving, however, a very marked discoloration. During the first week the urine decreased in specific gravity, increased in quantity, and assumed a reddish-brown color, due to the presence of urobilin. Later its color, etc., were quite normal, the tests for albumin remaining negative.

At the time of writing, November 22d, the patient is doing quite well, is up, free from pain, feels "very good, and has gained fifteen pounds." "The blisters," which still appear occasionally, "do not burn as they formerly did, and heal up in one or two days," the skin beneath being almost dry from the very start.

I call this chronic hæmorrhagic pemphigus because of the great number of hæmorrhagic eruptions (all the smaller more solid bullæ, and many of the others) when I took the case. At present, if an eruption appears, the contents contain no red blood-corpuscles, so that I am inclined to look upon the hæmorrhagic nature of the contents of the bullæ as due to the cachectic condition of the patient.

NO. 579 SEMINARY AVENUE.

A CASE OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.

CURED.

BY W. JARVIS BARLOW, M. D.,
HOUSE PHYSICIAN, MOUNT SINAI HOSPITAL, NEW YORK.

J. B., aged fourteen years, newsboy, was admitted to Mount Sinai Hospital on July 10, 1894, in the service of Dr. Manges, with whose kind permission the case is reported.

Family history negative. Parents could remember no previous sickness; always a strong and healthy child. The day before admission the boy was suddenly attacked with headache, vomiting, and prostration. No history of traumatism. He vomited often during the day, and had much pain in the head, abdomen, and limbs. In the evening he became slightly delirious, and the parents noticed a slight rigidity of the head.

On admission the patient was unconscious; temperature, 102° F.; pulse, 110; respiration, 26; face flushed; eyes brilliant and fixed; head rigid and slightly retracted; tenderness and stiffness of muscles of neck.

Examination of heart and lungs negative; abdomen tender, but no retraction; liver and spleen negative; patellar reflexes increased; movement of all extremities good. Soon restlessness and delirium became more marked, and with difficulty could only temporarily be controlled. The following day the symptoms were all severer. Increased retraction of head and stiffness of neck, no movement now being possible; marked tenderness over occiput and along the whole cervical region of the spine. Pupils react well; no strabismus or nystagmus. Abdomen extremely tender, with well-marked *taches cérébrales.* Patellar reflexes and all the skin reflexes increased. No ankle clonus.

First Week.—The fever followed an irregular course; lowest temperature, 100° F.; highest, 104°. Pulse at first rapid, then slow. Photophobia and intense hyperæsthesia; alternating delirium and stupor; no nystagmus; irregular movements of extremities.

Second Week.—Temperature still irregular; normal at times. Pulse, 70, small and compressible. Reflexes of limbs varied much; increased at times, then diminished, in one or both legs. Alternating delirium and stupor still marked. Pupils dilated, reacting well; fundus of eye normal. Herpes labialis well marked. Beginning emaciation. Stiffness and flexion of forearms and hands.

At the end of this week (July 23d) both lower extremities were rigid and in a state of flexion, more marked on the right side.

Urine always contained some albumin; casts, hyaline and granular, now appeared.

Third Week.—Temperature higher, 102° to 104°. Extreme rigidity and retraction of the head. Flexion and stiffness of all the extremities. Marked emaciation.

Photophobia and hyperæsthesia less marked.

Delirium giving place to stupor and coma.

For two or three days had difficulty in deglutition. Retention of urine and fæces.

Fourth Week.—Temperature lower, 99° to 102°. Pulse higher, 110 to 120. Involuntary urination; hyperæsthesia still marked; reflexes varying the same. Tongue dry, brown, and fissured. Coma deeper.

Fifth Week.—Temperature subnormal; pulse small and weak; emaciation extreme; coma still marked.

Pupils react well; no nystagmus; fundus of eye normal.

Sixth Week.—The patient began to show improvement; less stiffness of head and extremities; all can be moved without pain. Temperature normal, and on August 14th the patient showed consciousness. Voluntary urination and defecation. All symptoms abated, and on August 16th consciousness was complete. Contractures of extremities disappeared gradually. Appetite returned.

Seventh Week.—The urine contained considerable quantities of pus; acid in reaction. The temperature rose for a few days —remittent type—and the boy suffered much from pain on the left side of the abdomen. There was distinct resistance and tenderness over the region of the left kidney. Under treatment, however, all symptoms subsided, and in several more days pus disappeared from the urine. After this convalescence was uninterrupted.

Ninth Week.—The patient out of bed, and on September 9th was able to walk. All special senses normal. Tongue clean; no tremor. Intelligence complete. September 20th, discharged from hospital cured.

The treatment of the case consisted in the first two weeks of ergot in large doses, bichloride of mercury, iodoform, bromides, and stimulants. Morphine and hyoscine to control delirium. For the temperature, sponging the body freely, and in the second week a few plunge baths at a temperature of 65°, which subsequently were abandoned on account of the pain and discomfort. Later, tonic treatment and forced feeding.

A recovery so complete without impairment of intelligence or any of the special senses, after so protracted a course, with well-marked symptoms, it seems to me, makes the case worthy of publication. At no time was there any eruption, although it was carefully looked for. The interesting fact of the pyelitis on the left side seems difficult of explanation, and no mention of such is made by authorities to which I have had access.

FREE BLOODLETTING IN PUERPERAL ECLAMPSIA.

By D. DWYER, M. D.,
FOREST CITY, PA.

On Friday, November 2d, about 9 P. M., I was called to see Mrs. J. M., who was, as she supposed, about to be confined. On my arrival at the house, I found her in bed, apparently quite comfortable. The first thing which I did, of course, was to make examination. From this I concluded the labor had not at all begun, and, by the way, previous to my arrival, she had had no pains other than some stomach irritation. I could find no dilatation of the os, and was about to leave and return to my office after having remained about an hour, when she suddenly complained of dimness of vision and in a very few moments complete blindness. I anticipated the future, as we all, as practitioners of medicine, know what this means.

It was only a very few moments until she went into a convulsion which, indeed, was very severe. I could do nothing, only keep the teeth apart at the next. However, I had my chloroform ready and administered it in the usual way, and I am sorry to say with little effect. I remained at her bedside till five the next morning, when I left and returned to my office to see if I could find anything in my library that would enlighten me on the subject, and there, as Professor Ford, of the University of Michigan, used to say, "I succeeded in failing."

It was utterly impossible to get any medicine into the stomach, for she was unconscious from the first convulsion until we resorted to bloodletting. The convulsions came on every fifteen to twenty minutes. On the next morning, about eight o'clock, I called Dr. Blackslee in consultation, and on making an examination we found the os considerably dilated.

What, then, were we to do? We tried injections, but they were of no avail. We then, as the heading of my article indicates, resorted to free bloodletting. We opened the median basilic vein and drew therefrom a quart and half a pint of blood. We had no sooner done this than the patient regained consciousness and was immediately delivered of the child, which, in our opinion, was at about the seventh and a half or eighth month; it lived for four to five hours. The woman got along very well with medication. As soon as she would take any, we gave diuretics and cathartics.

This I consider a rare case on account of the extreme amount of albumin in the urine.

Now, I hope that none, and especially the younger practitioners of medicine, will hesitate to bleed, and bleed freely, in puerperal convulsions.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. APPLETON & CO.
Edited by FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, JANUARY 5, 1895.

THE TROUBLE WITH THE DETROIT HEALTH DEPARTMENT.

In Detroit there is trouble between the Mayor and the Health Department, and it dates from last summer, when the board of health dismissed its health officer. The board of health consists of three physicians and three *ex-officio* members, who are the mayor, the city controller, and the president of the Police Commission. One of the physicians, Dr. Duncan McLeod, was the health officer. He was dismissed after there had been some excitement in the city over a case of small-pox which had occurred in a cheap hotel and had not been discovered until the patient had died and several persons had been exposed to the disease. There has since been a number of cases in the city. There was no small-pox hospital, but the board of health built one as quickly as possible. The deposed health officer asked the courts to reinstate him, and got a decision that he could be employed as health officer when there was no epidemic of small-pox, but could not hold the office so long as the board of health found small-pox in the city. It was a singular finding. The mayor thought the health officer should be reinstated, but could not get a sufficient number of votes for the purpose. The deposed officer drew his salary by the consent of the mayor and city controller, notwithstanding his dismissal. For weeks there has been a steady turmoil of city politics interfering with the work of the board, and small-pox continues in the city. The Common Council has voted to dismiss the medical members of the board of health, who are Dr. Edward W. Jenks, the well-known professor of gynæcology, Dr. N. W. Webber, and Dr. Joseph Schulte, but an injunction has issued from the circuit court restraining the council from interfering. The medical members of the board all stand high among the physicians of the city and State, and perform their duties without pay. The health officer has a salary of $5,000 a year. The city controller has refused to pay any bills contracted by the present health officer, and refuses him his salary.

The mayor has served three terms consecutively, and is thought to be ambitious of re-election. It is to be hoped that he is not so willing as he appears to jeopardize the health of the city to advance his side of the case. Dr. Schulte has resigned in disgust. The other members, Dr. Jenks and Dr. Webber, propose to stand to their posts and remain true to their work, maintaining the health department up to its full degree of usefulness until their terms of office expire. Popular feeling is with them and against the mayor.

The law under which the board operates is not satisfactory to the people of the city generally for many reasons, principal among which is the fact that on the board of health there are three *ex-officio* members, two of whom are appointees of the mayor's and thus are thought to be subservient to his will and under his control. The board being composed of six members, with three of them bound together politically as one man and having the privilege of choosing three other members, it is reasonable to suppose that these three appointees will be such as the mayor and his two colleagues deem pliable. The three appointed members must be medical men, but need not necessarily be representative physicians.

This method of choosing the members of the Board of Health is not such as gives to the medical profession a chance to be recognized, and it is one that might convert this important board into a formidable political machine. The profession has absolutely no voice in securing appointments of representative men. When the trouble is simmered down to its dregs, it is thought to be due to nothing more nor less than the mayor's finding he can not dictate to three members of the board of health and to his desire to get rid of these men and fill their places with men who are willing to yield to his influence.

CORPORAL PUNISHMENT FOR CERTAIN FORMS OF CRIME.

A meeting is to be held at the Academy of Medicine on Wednesday evening, the 9th inst., under the auspices of the Section in Hygiene, to discuss the propriety of petitioning the Legislature, through the State Medical Society, to enact a law by which corporal punishment shall be inflicted upon certain criminals, especially upon those who beat and otherwise maltreat women. No class of people in the community is more familiar with the results of such criminal practice than physicians, for they are summoned to attend to the injuries which have been inflicted. Those who have seen much of the suffering proceeding from such causes must be callous indeed if they do not feel indignant at these occurrences, especially in view of the comparative helplessness of the victims so far as obtaining relief or justice is concerned. Animals are protected from cruelty by good laws and a most beneficent society. Children find an able defender from imposition and cruelty in the society so rigorously and watchfully presided over by Mr. Gerry, but about the only recourse of women who are the victims of brutal violence is to swear out a warrant against the ruffian, which may mean nothing at all, or may mean his arrest and a fine or possibly a few months on the island, with plenty of food, comfortable quarters, and then, when the time is up, a return to the home to get as much as possible out of the wife and perhaps give her "a good beating" by way of "getting even" with her for having caused the arrest.

The amount of cruelty which is inflicted upon women in this city, to go no farther, is appalling. Within a month the papers have contained numerous accounts of the most barbarous conduct. One brute knocked his wife down in the very presence of a police magistrate, to illustrate his method. Another threw his wife down stairs. Another, after a long course of cruelty to his wife, ended by killing her and then killing himself. There is scarcely a physician in large general practice, especially if he goes much among the tenement houses (though cruel treatment of women is by no means limited to the poor or to the tenement houses), who could not narrate instances quite as revolting as those which have been noticed in the daily papers. Here is one subject about which hyperbole in the daily press is impossible. The writer himself has seen almost every form of brutal treatment to which devilish malignity could subject women—faces bruised and battered, bones broken, unborn infants killed or maimed as the result of kicks inflicted upon the pregnant, serious pelvic inflammatory troubles excited and requiring dangerous surgical operations for their relief. The community at large stands aloof alike from these victims and from the brutes who are the cause of their suffering.

The present is a good time for the medical profession to take up the cause of the injured.

What of the men who commit these crimes?

It may be said that their evil deeds are always committed under the influence of liquor. Well, what if they are? That makes it no easier for the victims; besides, as a matter of fact, this is not true. The men who do such things are as a rule bullies and cowards who are only one degree more cruel and brutal when drunk than when sober. How can such brutal natures be appealed to? Kindness and persuasiveness are usually lost upon them. There may be some exceptions. Judge Stephen, in his *History of the Criminal Law in England*, says there are some men whose nature is essentially that of wild beasts. Their instincts teach them to prey upon and injure their fellow beings. In this class belong woman-beaters, and the same learned author thinks that the only way to impress them with a sense that they are doing wrong in inflicting pain upon others is by inflicting pain upon them. Argue as we may, the idea of punishment for wrong-doing can not be eliminated from society's regulations; to do away with it would mean anarchy.

The infliction of corporal punishment upon criminals of the class in question is indeed a measure which has dangers associated with it. If it is adopted, it should be surrounded with safeguards to prevent its abuse. That it can be done safely has been demonstrated in the history of the Elmira Reformatory, and in the laws and customs which prevail in the State of Delaware. So far as can be learned, the citizenship of Delaware has not become imbruted by the retention of the whipping-post, and a gentleman from that State will be present at the meeting in question to give certain facts in regard to the workings of that form of punishment there. It is hoped that every physician who is in sympathy with this movement will be present at the academy to hear the arguments which are to be laid before the profession in favor of the proposed law.

MINOR PARAGRAPHS.

NEW MEDICAL JOURNALS.

If there are not quite so many first numbers as usual to make their appearance at the close of the year 1894, it must be said that those that have appeared are of uncommonly good quality. The *Yale Medical Journal*, published in New Haven, more or less representative of the Yale Medical School, has been before the profession for a number of weeks, and must have made a favorable impression. It deserves to succeed, and we have no doubt that it will. Among the other initial or early issues that have since reached us are the *Journal of Medicine and Science*, described as the official organ of the Maine Academy of Medicine, a monthly published in Portland, edited by Dr. E. E. Holt and Dr. J. A. Spalding; the *Colorado Climatologist*, edited by Dr. Charles Manly and published monthly in Denver; the *Leucocyte*, published by the students of the Detroit College of Medicine; the *Intercolonial Quarterly Journal of Medicine and Surgery*, a very handsome journal published in Melbourne; and a weekly journal of therapeutics, the *Therapeutische Wochenschrift*, edited by Dr. M. T. Schnirer and published in Vienna. All the publications we have mentioned seem to have been started after due consideration and careful preparation, and we can not better commend them than by saying that we wish them a degree of success commensurate with their merits.

A MISTAKE IN ANATOMY.

In our issue for May 19th, on page 637, we published, under the heading of A New Sign of Lead Poisoning, an abstract from the *Presse médicale* in which the expression "the articulation of the manubrium with the ensiform cartilage" occurred. Quite recently Dr. George W. Wells, the editor of the *Medical Examiner*, has very kindly written to inform us that a number of journals, including his own, have copied the error without having observed it. We are glad to be able to say that the mistake was not ours, although we ought to have noticed it. In the French journal from which our abstract was made the phrase reads "*l'articulation du manubrium avec l'appendice xyphoïde.*" Of course, the *gladiolus* was meant instead of the manubrium.

CORSICA AS A WINTER RESORT.

Dr. Winslow W. Skinner, formerly of New York, has, as we announce under the heading of Changes of Address, recently taken up his residence in Ajaccio, Corsica. Dr. Skinner writes to us that Ajaccio is "a lovely winter resort, better for patients than the Riviera, if they are after quiet, freedom from dust, and sunshine." The place, we learn, is to some extent resorted to by American invalids.

THE NEW HEALTH OFFICER OF THE PORT.

The appointment of Dr. Alvah H. Doty to be health officer of the port of New York gives general satisfaction to the members of the medical profession. Dr. Doty's long and useful career in the service of the city board of health and in the medical corps of the State militia gives promise of excellence in his administration of the more exacting office that he is now to fill. No better appointment could have been made.

ITEMS, ETC.

Lectures on Regional Surgery.—Dr. G. Frank Lydston will begin his third special course in regional surgery at the Masonic Hospital, Chicago, on Monday evening, the 7th inst., at eight o'clock. The lectures will be given every Monday evening. The subjects are: The Surgery of the Prostate, Bladder, and Kidneys, including Calculus; Appendicitis; The Surgery of the Rectum and Urethra; and Varicocele. The lectures will be illustrated by special charts and drawings.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 1, 1895:

DISEASES.	Week ending Dec. 25.		Week ending Jan. .	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	20	7	10	6
Scarlet fever	92	9	107	13
Cerebro-spinal meningitis	2	2	2	1
Measles	66	7	49	4
Diphtheria	175	38	212	47
Small pox	9	3	0	0
Tuberculosis	94	117	109	142

The City Lunatic Asylums.—Last week the State Commission in Lunacy reported to Mayor Gilroy the results of its inquiry, undertaken at his request, into alleged abuses in the city asylums. The report concludes as follows: "It is a well-known fact that the degree of liberality displayed by representatives of the State in making appropriations for charitable purposes is always much greater than that shown by local authorities. In other words, experience has everywhere shown that the closer the relations between the appropriating power and the locality where the moneys appropriated by this power are to be expended for charitable purposes the more parsimonious the policy; and this fact has always proved detrimental to the welfare of the insane when under county or local control. As before stated, the conclusion of the commission regarding the evils which have been shown to exist in the New York city asylums is that they are largely, if not wholly, attributable to the system under which these asylums are operated, and that, however feasible in theory, in practical operation this system has been a failure, and fallen far short of the hope which has from time to time been entertained for it. As a system it has developed inherent difficulties and defects, which experience has shown to be ineradicable, even under the ablest management, and which make its operation in all essential particulars practically impossible. Such being the case, the commission would recommend that it be abolished, and that the policy of State care for the dependent insane of the city of New York be adopted at the earliest practicable date. It can not be said that the present system of county care has not had a fair trial, and this, too, under exceptionally favorable conditions, as compared with any other instance of county care in the State, and yet it has failed to meet every reasonable or just expectation. If the system has been a failure from its inception, is it not reasonable to conclude that it is likely to be a failure for all time to come? Respecting the State hospitals, it is believed that most of them represent to-day all that is best in the present state of knowledge respecting the care and treatment of the insane, and that whatever other criticism may be passed upon them, it can not be said that their inmates are not comfortably housed, properly fed, sufficiently clad, provided with sufficient attendance, and given proper medical supervision and care. The adoption by the city of New York of the policy of State care has long been advocated by the State Charities Aid Association, many of whose active members are thoroughly familiar with the workings of both systems and the results attained by each, and with their views upon this subject the commission in lunacy is in full accord. The principle of State care for the dependent insane represents the most intelligent and humane thought upon the subject at the present time, and it is to be hoped that the local authorities in the counties of New York and Kings, who are responsible for the matter, will not long hesitate in taking the necessary steps for the complete consummation of this policy by availing themselves of the opportunity extended to them in the State care act."

The New York Academy of Medicine.—At the last regular meeting, on Thursday evening, the 3d inst., a paper was to be read on The History of the Treatment of Spondylitis and Scoliosis by Partial Suspension and Retention by means of Plaster-of-Paris Bandages, and the Present Status of this Plan of Treatment before the Profession of the World, by Dr. Lewis A. Sayre.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 8th inst., there will be a presentation of cases, pathological specimens, and new instruments. A paper entitled Latent Gonorrhœa in the Female will be read by Dr. W. R. Pryor.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 10th inst., cases will be presented, and Dr. Henry Koplik will read a paper on The Milk Supply of New York and its Availability for Infant Feeding.

At the next meeting of the Section in General Surgery, on Monday evening, the 14th inst., a paper entitled A Subgluteal Triangle and its Surgical Importance will be read by Dr. Ramon Guitéras. There will be also a presentation of patients and an exhibition of pathological specimens, new instruments, etc.

The treasurer's report for the year ending December 15th says: "Evidences of broader influence, of higher attainment, of greater stability, must gratify observing friends of this academy. The work which depends upon your contribution to the treasury has not been allowed to wane. Receipts and expenditures for the library and general advancement are larger than during any previous year, notwithstanding the great financial depression, which physicians have keenly felt. The bureau for nurses has been self-sustaining and added something to the treasury. Three hundred and fifty-eight nurses have been registered, and one hundred and eighty calls for nurses have been responded to. Number of resident fellows, 774; number added during the year, 40; lost by death, 8; by removal and suspension, 15. There are now 60 non-resident fellows, 40 corresponding fellows, 7 honorary fellows, and 9 benefactors."

Changes of Address.—Dr. Francis W. Murray, to No. 32 West 39th Street, New York; Dr. Winslow W. Skinner, formerly of New York, to No. 32 Cours Grandval, Ajaccio, Corsica.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 20 to December 29, 1894:*

GLENNAN, JAMES D., Captain and Assistant Surgeon. The order assigning him to duty at Fort Snelling, Minn., is revoked.

SHAW, HENRY A., First Lieutenant and Assistant Surgeon. The order assigning him to duty at Fort Niagara, Nebraska, upon the abandonment of Fort McKinney, Wyoming, is so amended as to direct him to report for temporary duty at Camp Merritt, Montana, and upon the completion thereof to proceed to Fort Snelling, Minnesota, for duty at that post.

KENNEDY, JAMES M., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the limits of the department.

WHITE, ROBERT H., Major and Surgeon, is granted leave of absence for a month, to take effect about December 24, 1894.

Society Meetings for the Coming Week:

MONDAY, *January 7th:* New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private), New York; Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

TUESDAY, *January 8th:* New York Medical Union (private, election); New York Academy of Medicine (Section in Genito-urinary Surgery); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Broome (quarterly—Binghamton), Chenango (annual), Clinton (annual—Plattsburgh), Erie (annual—Buffalo), Genesee (semi-annual—Batavia), Greene (quarterly), Jefferson (annual—Watertown), Livingston (semi-annual), Madison (semi-annual) Oneida (quarterly—Utica), Ontario (quarterly), Oswego (semi-annual—Oswego), Rensselaer (annual), St. Lawrence (annual), Schenectady (annual—Schenectady), Schuyler (annual), Steuben (semi-annual), Tioga (annual—Owego), Wayne (semi-annual), and Yates (semi-annual), N. Y.; Newark, N. J., Medical Association (private—election); Trenton, N. J., Medical Association (private); Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Northwestern Medical Society of Philadelphia; Practitioners' Club, Richmond, Ky.; Norfolk, Mass., District Medical Society (Hyde Park).

WEDNESDAY, *January 9th:* New York Surgical Society; New York Pathological Society (annual); American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Societies of the Counties of Albany, Dutchess (annual—Poughkeepsie), and Seneca (semi-annual), N. Y.; Tri-States Medical Association (Port Jervis, N. Y.); Hampshire, Mass., District Medical Society (quarterly—Northampton); Worcester, Mass., District Medical Society (Worcester); Bennington, Vt., and Hoosick, N. Y., County Medical Society (annual—Arlington, Vt.); Kansas City Ophthalmological and Otological Society; Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society.

THURSDAY, *January 10th:* Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society (annual—election); Medical Societies of the Counties of Cayuga and Fulton (annual—Johnstown), N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

FRIDAY, *January 11th:* New York Academy of Medicine (Section in Neurology); Yorkville Medical Association, New York (private); Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

SATURDAY, *January 12th:* Obstetrical Society of Boston (private); Worcester, Mass., North District Medical Society.

Births, Marriages, and Deaths.

Married.

SUMMERS—HILL.—In St. Matthew's, S. C., on Thursday, December 27th, Dr. George Summers and Miss Rosa Hill.

Died.

DETMOLD.—In New York, on Wednesday, December 26th, Dr. William Detmold, aged eighty-six years.

KURTZMAN.—In New York, on Monday, December 31st, Dr. Edward J. Kurtzman, aged twenty-four years.

Letters to the Editor.

APOCYNUM CANNABINUM.

Fort Wingate, New Mexico, *December 28, 1894.*

To the Editor of the New York Medical Journal:

Sir: The interesting letter of Dr. Rollin B. Gray on *Apocynum cannabinum*, published in the *New York Medical Journal* of December 15, 1894, in which he traces back the use of this remedy to the Cattaraugus Indians, leads me to send the following account of its medicinal use among the aborigines of to-day.

This plant still maintains its right to the popular name of Indian hemp, as it is in common use among the Sioux Indians of Dakota and Montana and the Cheyennes in Indian Territory.

These Indians use the plant in the treatment of various maladies, but its pre-eminent value in their eyes consists in its virtue as a cure for the bite of the rattlesnake. For this most serious and not uncommon incident of life on the western plains they maintain that it is a never-failing cure. How much truth there may be in their assertions I can not say, but hearing from different sources, season after season, remarkable stories of the successful treatment of rattlesnake bites by Indians, I was led to investigate the means employed. My efforts were successful only after a large expenditure of time and patience, as well as coffee, sugar, and tobacco.

The root was generously given me, and the manner of its use freely explained, but no one would point out the growing plant. The rank and file of the Indians asserted that no one except the "medicine man" knew; and he maintained that he might only impart his knowledge to his successor in office when his time should come.

Several seasons passed before I became sufficiently intimate with one of the wise men to induce him to reveal his secret and bring me the mysterious plant whose greenish white flower I recognized as that of *Apocynum cannabinum*. The plant is common along the banks of streams from Dakota to Texas.

The root of the plant is used, either freshly gathered or dried. The wound made by the fangs of the snake is first cut and scarified until it bleeds freely, when it is thickly covered with the scraped or powdered root bound on by a piece of well-greased buckskin. A quantity of the dry powdered root (about 260 mgms. for a child, and 390 mgms. for an adult), infused for ten or fifteen minutes in a little hot water, is then given internally. The dressing of the wound and the powder taken internally are repeated every twelve hours for two days. "Third day, bite gone," in the words of one of my informants.

If the fresh root is used it is scraped and applied locally as before, while for internal use an infusion is made by putting about an ounce of the root, cut into small pieces, into a pint of hot water and letting it stand for an hour or more, or until it acquires a milky appearance. The quantity of this given at one time is from two to three ounces. While they are preparing the medicine, many incantations, said to be essential, are performed.

The dose of the powder given internally I was at first disposed to look upon as rather an uncertain quantity, it being two pinches for a child and three for an adult, but upon carefully weighing a number of "pinches" they were found remarkably uniform in size, scarcely varying from 130 mgms. (2 grains) each.

Some of the cures reported were apparently well certified. The agent of the Yanktounais (a tribe of the Sioux) described to me a case occurring under his own observation in which a girl about twelve years of age was bitten on the arm by a rattlesnake and recovered within a week under the treatment of the Indian "medicine man."

Other tribes may make use of Indian hemp, but my observations have been made only among the Indians mentioned above, the Cheyennes and the numerous tribes of Sioux.

James P. Kimball, M. D.,
Major and Surgeon, United States Army.

THYREOID EXTRACT.

New York, *January 1, 1895.*

To the Editor of the New York Medical Journal:

Sir: On December 24th the New York representative of Parke, Davis, & Co. wrote me a letter the important part of which is contained in the following lines of information and warning:

"I have recently heard of the complaint made by yourself against the extract of thyreoids. My house have written me that they very much regret your action in having sent this product to some of your friends in Europe, since they have never made any claims for it, in fact believe it to be perfectly worthless. However, there has been a certain demand for it, and they have been obliged to put it on the market. The product, you know, was made after the Hammond process, and the demand made by the great advertising given to it by the company handling the Hammond product. Now that my people know that it is not only worthless, but subject to putrefactive changes, they have ceased to manufacture it."

The letter from which this literal extract is herewith given was no reply to any of mine, nor does it claim to be confidential. It is full of interest, and very suggestive.

A. Jacobi, M. D.

THE LOCAL EMPLOYMENT OF COPPER ARSENITE.

1411 Walnut Street, Philadelphia, *December 24, 1894.*

To the Editor of the New York Medical Journal:

Sir: Referring to the article by Dr. A. Hrdlicka, on the local use of copper arsenite, which appeared in a recent issue of your valued journal, and to the attention which this report has received at the hands of medical editors, I beg to submit some additional notes on this important remedy. As a preliminary, however, it will not be out of place here to claim priority in the local employment of the drug, the following notes being extracts from *The Pocket Pharmacy* (D. Appleton & Co., 1892), which I prepared in the autumn of 1891. The object of this little work was to record a number of important clinical facts which I might be able to elaborate more fully at a later period.

Directions are given for the preparation of *solutions* of copper arsenite, as follows:

"When used in the form of *enemata*, a single tablet containing one grain of the drug is added to a pint of boiled water, and to this mixture sufficient diluted hydrochloric acid is added drop by drop to effect solution, by which we obtain, in fact, a chlorarsenite-of-copper solution. For use in the mouth and nares and for vaporization in the treatment of tuberculosis, a solution is prepared by adding one tablet containing a grain to four ounces of boiled water, and sufficient diluted hydrochloric acid to make a clear solution; it should be passed through a filter to remove any sugar of milk or arsenious acid which may remain as a sediment.

"Experiments made with acetoarsenite of copper, which is more readily soluble than the arsenite, proved unsatisfactory, owing to the precipitation of a considerable portion of arseniou acid, while a solution of the chlorarsenite is stable, showing no indications of deterioration after several months. Each thirty minims of the solution carries approximately a sixty-fifth of a grain (one milligramme), and this amount may be used hypodermically in the treatment of tubercular affections every second day and also in typhoid fever, without danger of abscess or any untoward symptoms other than follow the use of medicaments in this manner."

The solution was recommended to be applied locally and taken internally in the treatment of *aphthæ;* in the form of a spray, after the preliminary use of hydrogen dioxide, in the treatment of *asthma ;* also in the same manner for the relief of *bedsores*, to be followed by aristol as a dusting powder; in the case of *blepharitis*, to be followed by the use of purified petrolatum containing a small percentage of paraffin; for the relief of *cancrum oris;* in the form of a spray three or four times a day, in *acute nasal catarrh*, and the same in the case of *chronic catarrh;* in certain stages of *cholera*, in the form of enemata; as an enema in *cholera infantum* and for *cholera morbus;* in the form of a spray or vapor, for *croup* and for *diphtheria;* in the case of *enteritis* and *membranous enteritis*, in the form of enemata; in *glanders* it is recommended locally and internally; in *gleet* it is advised in the form of a solution three or four times a day, and also in *gonorrhœa*, *glossitis*, *œdema of the glottis*, *spongy gums*, *hay-fever*, *influenza*, *intertrigo*, *leucorrhœa*, *sore nipples*, *phthisis*, *prolapsus ani*, *puerperal fever*, *scarlet fever*, *scurvy*, *sneezing*, when it occurs in connection with hay-asthma, *stomatitis*, *amygdalitis*, *tympanites*, and *yellow fever*.

In the case of Asiatic cholera and yellow fever, I have only advised its use on speculative grounds, but in all the other instances cited the recommendations are warranted from personal experience. In the form of a spray or by vaporization, it has certainly shown remarkably good results in the treatment of incipient tubercular affections in conjunction with the hypodermic administration. I now recall a most interesting case of *chronic gonorrhœa* with orchitis which came under observation in December, 1891. The patient had been under treatment for several months; there was a muco-purulent discharge and the left testicle had attained to the dimensions of a good-sized orange. He came to me from New York on the way to his home in one of the Southern States and recovered fully in less than ten days. For the orchitic involvement the local treatment consisted in the application of ointment of red iodide of mercury (1 to 10 of benzoinated lard) and the addition of a suitable suspensory bandage.

From the foregoing it will be observed that the arsenite of copper has a wide range of usefulness, although these are only such as I saw fit to include in my little book written in the latter part of 1891. JOHN AULDE, M. D.

Proceedings of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

Twentieth Annual Meeting, held in Washington, May 30 and 31, and June 1, 1894.

The President, Dr. B. SACHS, of New York, in the Chair.

(*Concluded from page 668.*)

Crossed Knee-jerk.—This was the title of a paper read conjointly by Dr. GUY HINSDALE and Dr. J. MADISON TAYLOR, of Philadelphia. It was based on studies of over a thousand cases of nervous diseases observed at the Infirmary for Nervous Diseases, Philadelphia, and at the institutions for the Feeble-minded at Elwin, Pa., and Vineland, N. J. In using the term crossed knee-jerk, it was meant that the patella tendon being struck, the opposite leg was instantly made to approach its fellow; hence the phrase "in-knee-jerk" or "contralateral knee jerk" might be used to describe this action. The movement observed in the limb opposite to that in which the patella tendon was struck was not an extension of the leg so much as an adduction of the thigh (vastus internus and cruræus). The best attitude for eliciting the movement was not that which permitted the freest knee-jerk, such as sitting on the edge of a table, or at least with the legs hanging down from a sufficiently high chair. It demanded rather more ease of lateral motion of the thigh. This was accomplished very well by seating the subject at ease in a chair, with the body erect and the knees ten or twelve inches apart, with the knee-joint at rather an obtuse angle, the feet being advanced a few inches. The phenomenon was observed in a small proportion of normal persons, and in from twenty to thirty per cent. of the patients coming to a clinic for nervous diseases. It was distinctly proved not to have been due to a communicated shock or jar to the pelvis by reason of its absence in all cases of locomotor ataxia, and its production in favorable cases on suspending the subject from the floor and observing the adduction of the thigh on tapping the patella tendon or, as in one case observed, tapping the tendo Achillis.

Crossed knee-jerk was also found to be re-enforceable. Tracings were shown which had recorded in a normal subject an adduction in crossed knee-jerk of a sixteenth of an inch; in a spastic, a quarter of an inch, and in the latter case, under re-enforcement, half an inch. Re-enforcement produced the movement in some cases where it was not otherwise evident. A case was related in which a very slight tap on the patella tendon had caused violent contractions of both legs, causing the knees to knock together or to cross over; a smarter tap would cause, in addition, the crossing of both arms in a sort of lock spasm, requiring aid afterward in stretching out the limbs.

The reflex arc involved in movements of this kind was held to embrace the cerebrum.

Dr. H. R. STEDMAN, of Boston, asked if this condition had not been somewhat similar to the so-called allocheiria.

Dr. WALTON thought that a practical result bearing on diagnosis could not fail to follow careful and systematic investigation of these anomalous reflexes. We had not exhausted the directions in which the reflex impulses might be deflected. He had found not only the classical reflex, recently described by Remak, of toe flexion on stroking the inner side of the thigh, but had seen both dorsal and plantar flexion of the toes on stroking various areas in the extremities in cases of broken back.

Dr. MORTON spoke of the application of faradaism to the right sciatic nerve as having produced a reaction in the muscles of the left shoulder.

Dr. GEORGE W. JACOBY referred to a paper read by him a few years ago, in which he had called attention to the phenomenon of irradiation of the electrical current.

Dr. MILLS believed that the best explanation would be forthcoming from a careful study of the distribution of cells and fibers in the cord and their relation to other parts of the system.

The PRESIDENT considered the title of the paper an unfortunate one, and did not look upon this phenomenon as a crossed knee-jerk at all, but as a contralateral muscular contraction. He thought its reflex character was quite doubtful, and that there was no difficulty in accounting for irradiation on anatomical grounds.

Trephining among the Ancient Peruvians.—Dr. Dercum, of Philadelphia, exhibited a skull which had been kindly loaned by Mr. Bailey Willis, of the Geological Museum. It belonged to the Peruvian Government, and its origin had been traced to prehistoric times. It was shown as an illustration of the ancient method of trephining.

Recurrent Oculo-motor Paralysis.—Dr. Knapp, of Boston, read a paper with this title, in which he related the case of a man, forty-one years old, who had had nervous heredity and severe neuralgic pain over the left eye, with ptosis, external strabismus, and numbness of the face, a year before he had come under the speaker's observation. This had lasted seven weeks. In December, 1892, one year later, he had had intense pain in the left side of the head, with nausea and vomiting. There had been complete paralysis of the left third nerve, with anæsthesia of the nose and cheek on the left side, and paræsthesia of the forehead. Photophobia had been present. The anæsthetic region had been extremely tender on pressure, and there had been an increased discharge from the left nostril. After two weeks the paralysis had begun to diminish, and after four weeks it had almost wholly disappeared, but the sensory symptoms had still continued in a lesser degree. Statistics were then given of forty cases, and of ten other cases of a doubtful nature. In only six cases had there been complete recovery from the paralysis in the interval between the attacks, and in four more the pupil had remained dilated. In seven cases there had been at first complete recovery, but in the later intervals there had been some paresis. Senator's division into periodical and periodically exacerbating cases had hardly seemed warranted, and, although some of the cases resembled migraine, the affection in most cases, if not in all, was not like migraine. Three autopsies had shown lesions involving the nerve, and most cases were probably due to such.

Dr. Mills had observed several cases of recurrent ocular palsy with involvement of the fifth nerve. He had also seen cases of recurrent facial paralysis. The only probable explanation in most cases was that of organic lesion. He thought Dr. Knapp's cases had probably been due to a lesion of the root fibers.

Dr. Morton Prince agreed with Dr. Knapp in believing that these cases had been caused by organic lesion. He believed that pain, as a localizing symptom, possessed very little value. He would rather depend upon motor and sensory paralysis.

Dr. Walton thought all cases should not be classed together. While many were of nuclear or basal origin, possibly some of the less grave cases were due to recurring œdema, or perhaps vascular disturbance at the cortex, which would probably explain the coincidence of motor and sensory disturbance. It might be that some cases were allied to the severer form of hysteria.

Dr. Knapp said that there was no case of complete recovery on record where there had been both motor and sensory involvement. In cases of syphilitic origin, where only one or two branches were involved, it was more likely to affect the nerve after it had left the pons.

Circumscribed Softening of the Pons Varolii and, in the Same Case, of the Internal Capsule, Caudatum, and Lenticula.—Dr. Charles K. Mills and Dr. John Zimmer presented a paper on this subject in which they stated that this case showed two limited lesions of unusual interest—one in the pons, and the second involving the internal capsule and a small segment of the caudatum and lenticula. The patient, a woman, forty-two years old, had had a previous history of alcoholism and of acute articular rheumatism. Examination had shown slight impairment of mental action, marked somnolency, and imperfect articulation. At rest, the right eye had turned strongly to the right, while the left had not been deviated. Both eyes could not be turned together to the left. The lateral movement of the left eye to the right had also been impaired, and slight nystagmus of both eyes had been present. The lids of the left eye could not be brought fully together. Right facial paresis had been present, but the tongue had not been deflected. Tendon and muscle phenomena had been much exaggerated in the paretic limbs. Anæsthesia could not be discovered in any portion of the body. About eleven days after admission she had had a second apoplectoid attack. She was then totally unable to articulate, but understood what was said. She was also unable to expectorate, and there was interference with swallowing. A thorough and careful autopsy made by Dr. Guiteras had revealed a circumscribed softening of the pons. The lesion at its cephalic extremity had reached to within 1·5 millimetres of the ventral surface of the pons, laterally extending to the rhaphe, and about the middle of the pons slightly across the mesial line. The area of softening had become smaller and more deeply situated as it approached the postoblongata, which it almost, but not quite, reached. The second lesion had been revealed by a vertical transverse section of the right basal ganglia and capsule. The widest portion of the lesion had corresponded to the plane of the cephalic extremity of the thalamus. It was about seventeen millimetres in its antero-posterior extent. The pontile lesion had probably involved the root fibers of the abducens, and the fibers connecting it with the facial fibers or nucleus. The position of the lesion had been such as not by any possibility to involve the cell nests of these nerves. The lesion had involved the crustal portion of the pons, including a portion of the pyramidal tract and the deep transverse fibers. The lesion of the internal capsule had been beautifully localized near the genu, probably involving the geniculate and speech tracts.

Lesion of the Thalamus. Death from Intestinal Hæmorrhage.—This paper was read by Dr. Wharton Sinkler, Philadelphia. He referred to the importance of placing on record all facts relating to the function of the thalamus, and stated that his attention had been drawn, in connection with the case which he reported, to the observations of Lussana, Brown-Séquard, Ebstein, and Schiff many years ago, in which they had produced ecchymoses and hæmorrhages into the mucous membranes of the stomach and colon of some of the lower animals by wounding the corpora quadrigemina and optic thalamus.

The patient was a man, sixty-seven years old, who had worked for many years in a stone quarry, and had received frequent slight injuries to the scalp, in consequence of being struck by fragments of stone.

In July, 1892, after having been exposed to the sun, he had suddenly been taken ill, and had had to be removed to his home while in an unconscious condition, where he had been seized with convulsions, which had lasted for the greater part of two days. After a month he had been able to resume his work; but two weeks later he had begun to have epileptoid convulsions, which had recurred at irregular intervals of from one to two weeks. The seizures had always been preceded by an olfactory aura, the patient having observed the smell of burning sulphur. After a few months the patient had had maniacal attacks after his fits, and had been removed to the Philadelphia Hospital in December, 1893.

There had been nothing notable about his condition, except that the attacks of epilepsy had been of the procursive form. He would run violently, and imagined that he was pursued by devils. Toward the end of February he had had an attack in which there had been rise of temperature, apparently without any physical reason. His intellectual powers had failed, and he had gradually fallen into a somnolent condition, which had lasted for nearly three weeks, at the end of which time he had suddenly and without premonitory signs been seized with intestinal hæmorrhage of a profuse character, from which he had died in about twelve hours.

At the autopsy the mucous membrane of the colon had been found to be softened and deeply injected, but no lesion had been found in the way of an ulceration or rupture of a vessel which would account for the hæmorrhage.

The brain had shown very marked evidence of an old leptomeningitis over the left hemisphere, and there had been atheroma of the vessels of the base. In the posterior right thalamus there had been found a small area of softening. It was about a third of an inch in length by a fourth of an inch in its transverse diameter. No other coarse lesion could be found in the brain.

Cerebral Hæmorrhage; its Cause and Premonitory Symptoms.—Dr. C. L. Dana, of New York, presented this paper and a report of a hundred consecutive cases of apoplexy with hemiplegia observed at his clinic at the Post graduate Hospital. also seventy-nine cases of apoplexy with autopsy observed in Bellevue Hospital. Thirty of the latter had come under his personal care and observation.

Of a hundred non-fatal cases, thirty-six had been due to syphilis. The special characteristics due to syphilis were that they occurred in early life; they were often multiple in character, and the pathological condition underlying them was usually a thrombosis and softening.

So far as his experience and records went, cerebral hæmorrhages were rarely repeated, and it seemed as if in many cases the rupture of an artery had changed the vital conditions, as it certainly did the personal habits, so that the attack exercised a conservative influence upon the individual and actually tended to prolong life.

Dr. E. D. Fisher, of New York, read a report of seventy-seven cases. Fifty-one patients had had one attack, sixteen had had two attacks, nine had had three, and one had had six. All were still living. These cases had been observed in his service in the City Almshouse. The average age at which the first attack had occurred was about forty five years. His observations, he thought, confirmed what had been said by the reader. The longest duration since the attack had been twenty-two years.

Dr. Gray, of New York, thought that the fatal defect in the paper was that many things were confounded. It told us nothing as to the frequency of apoplexy, but left us in doubt as to the elements of diagnosis.

Dr. L. Weber, of New York, said that, while he believed Dr. Dana's deductions from his own cases were of value, those from other sources did not seem to him to be applicable.

Dr. William A. Hammond doubted whether life was in any way protected by an attack of apoplexy, as the same causes would persist.

Dr. Sinkler had observed a case in which the attack had occurred twenty-five years ago. The patient did not seem to be in any way benefited in his general condition.

Dr. Prince thought the fallacy lay in the statistics as to those still living, as one could not say how many attacks they were going to have.

Dr. Dana said it was hardly fair to criticise his data, as sufficient time had not been permitted for the reading of his entire paper.

Lumbar Puncture for the Removal of Cerebro-spinal Fluid.—This was the title of a paper by Dr. William Browning, of Brooklyn. He reviewed the main points in this recently devised operation. Brief notes of a few cases were given, as well as directions for its performance. The following conclusions were reached:

1. The method was simple, easily practiced, and rather attractive.

2. In itself it was usually without danger.

3. By it we certainly could draw off cerebro-spinal fluid.

4. The quantity removed at short sittings had been from one ounce to one and a half in adults.

5. This without doubt represented the amount of free fluid usually present in the lower vertebral canal even when occluded above.

6. In internal hydrocephalus the relief, if any, was but very temporary. In the common form due to tubercular meningitis the result was not worth the trouble, while in the closed or sacculated forms it must rather do harm than good.

7. As a diagnostic means—*e. g.*, in suspected meningeal hæmorrhage—it was valuable. As an index of pressure it might also be worth noting.

8. It was worth further trial—(*a*) as a passing relief in brain tumors not complicated by hydrocephalus; (*b*) as a substitute for trephining in progressive dementia; (*c*) in certain spinal troubles; (*d*) and possibly as a means of applying medication directly to the spinal meninges.

9. In conclusion it might be said that, while admissible in all cases of brain pressure, there was as yet no established indication for this procedure except for diagnostic purposes.

Dr. Mills said that all operations of this kind were unphilosophical and would accomplish nothing, as the fluid re-accumulated. The same might be said of hydrocephalus. Some good might be done when the fluid was either blood or pus, otherwise it was not indicated.

Dr. Dana had used this method in three cases of alcoholic meningitis (in the so-called "wet brain"). Two patients had recovered and one had died. In the adult the operation was difficult. He agreed with Dr. Mills as to its indications and utility, but he believed that the operation possessed, at least, some rational foundation.

The Non-operative Treatment of Brain Tumors.—Dr. Theodore Diller, of Pittsburgh, was the author of this paper. The writer took the view that not all brain tumors which could be localized should be operated on. He cautioned against regarding as successes those procedures which succeeded merely surgically. The obstacles in the way of a complete success were many, and the results were disappointing in spite of the rich and growing knowledge of localization. Operations should not be undertaken unless the patient was getting worse in spite of medical treatment.

Dr. Starr spoke of the case of a man with a doubtful history of syphilis and all the symptoms of cerebral tumor. Its localization had been a simple matter. Mercury had been used and iodide of potassium had been given in doses of three hundred grains daily. There had been a marked improvement in all the symptoms, and it had seemed to be a case of recovery without operation. The patient had died suddenly, and at the autopsy a cystosarcoma had been found without any evidence of gummatous infiltration.

Dr. Putnam believed we should operate only when there were definite indications.

Dr. Sinkler mentioned the case of a man with Jacksonian epilepsy and no history of syphilis. Two years later all the symptoms of tumor had been present. Mercury and iodide had been used, but he had become progressively worse. An operation had been performed, but no tumor could be discovered. The wound had healed well. Since then, the patient had improved steadily in all symptoms.

Dr. Jacoby said there was a class of cases presenting all of the symptoms of tumor which got well without operation. He cited the case of a man with many of the symptoms, excepting optic neuritis, where he had been unwilling to make a positive diagnosis. The *Plasmodium malariæ* had been found in his blood and he had made a complete recovery under large doses of quinine.

The President stated that we had all been disappointed more or less in the results after operation. It might be our own fault on account of the delay in operating. He had had a similar experience to that of Dr. Starr. At the autopsy there had been found a typical glioma. The symptoms had entirely disappeared for several months. In another case with all the symptoms of tumor, iodide had been used, but all the symptoms had subsided after thorough mercurial inunction.

An Electrode for Use in Diagnosis.—Dr. W. M. Leszynsky, of New York, presented an electrode which had been specially constructed with a view to its usefulness in diagnosis.

The Treatment of Convalescence and the After-care of the Insane.—Dr. Henry R. Stedman, of Boston, spoke of the dangers attending convalescence in insanity and the precautions necessary to prevent relapse or prolong remissions. General rules and advice regarding the prevention of insanity were not regarded even by predisposed subjects, and were practically of but little use. The case was different when once an attack of insanity had been experienced. Although in certain cases the proper conduct of convalescence was vital to mental health, the study of this period was confined to a few scattered suggestions in the works on insanity. Instances of abrupt recovery, with hardly any convalescent stage, were rare. Although it might happen in chronic cases, it occurred, as a rule, in those of short duration—notably confusional insanity and the toxic and neurotic insanities. Lucid intervals or spurious convalescences differed often in no respect from genuine recovery, with the single and essential exception that the sleep did not improve, or was worse. This was a valuable indication in the prognosis of permanent return to reason. To the cardinal signs of convalescence should often be added the disappearance of decided fear of a return of the attack and dread of the stigma to follow. It was important to be informed regarding the normal and usual physical troubles of the patient, as their reappearance was another and valuable indication of recovery; also in regard to a knowledge of the sequence of immediate prodromata of an attack. They were often repeated in reverse order while the patient was getting well. Complete mental rest during menstrual epochs, so highly important at this time, was often disregarded, and application of the mind, even to a slight degree, in study or other work, was equally to be deprecated. Early discharge from the asylum, or from special care away from home, was to be advised against, as a rule, especially in cases of melancholia with a history of suicidal attempts, and after acute mania, the most exhausting form of insanity, and one which left the patient particularly susceptible to slight influences for a long time. On the other hand, we should frequently advise early removal in other cases convalescing from melancholia, particularly when homesickness was a marked feature and occasionally when there was refusal of food. Certain patients with mild mania, also paranoiacs who were independent in the asylum and actively opposed treatment, were steadied by outside life. A change also worked well until its novelty had worn off. The first year or so after recovery was a very critical time. The reader gave a number of indications in special cases, and suggestions for prevention of relapse.

These remarks applied chiefly to well-to-do patients. An important branch of this subject was the means for the after-care of the pauper insane. There was practically no provision outside of asylums for this class, and practically little advice or other help was given these unfortunates on leaving asylums; while for the physically sick, on the other hand, there was abundant provision for their care during convalescence, and the discharged convict was greatly helped and encouraged by charitable societies for the purpose. Asylum physicians often hesitated to set certain patients, whose mental condition seemed to have so far improved as to make it useless to keep this class longer under care (and even some who had fully recovered), at liberty, for fear that, thus suddenly thrown on their own resources, without oversight or perhaps means of support, they would fall back into their old habits of life which had given rise to their insanity. This fact, and their delicate mental condition, often rendered them easy victims to designing people.

These and other reasons had led to the formation in France of protective societies, called *Societies of Patronage*, under official auspices. Their duties were to aid convalescent or recovered pauper patients by gifts of money, clothing, tools, redemption of articles in pawn, payment of rent, admission to convalescent homes in cottages intermediate between confinement and complete freedom, or in hospitals or houses of refuge; securing situations for them, and finally their supervision wherever employed. This work continued during the first month or two after the patient's discharge. Similar societies or means of relief had been adopted in England and Scotland. They were described in detail. There was no better work on the score of both humanity and public economy than the adoption in this country of similar means for the prevention of insanity.

Dr. E. D. Fisher was of the opinion that patients left the asylum too early. In cases where they were oversensitive regarding their previous incarceration, something must be done to care for them and obviate a relapse. He was in favor of establishing convalescent homes for such patients, and spoke at length in confirmation of the views of the author of the paper.

Dr. Dercum thought this matter a very important phase in the care of the insane. It was, however, quite difficult to deal with individual cases. Where the element of exhaustion had been a prominent causative factor, the patient required detention and care much longer.

Dr. Starr was glad to know that Dr. Stedman favored the earlier removal of melancholics from asylums. One of the chief difficulties was in controlling the families who did not know how to manage the patient after his return.

Dr. Jones, of Minnesota, said that in Minnesota, since the word asylum had been changed to that of hospital, it had tended to remove any of the supposed stigma that had been usually attached to people who had been in institutions for the insane.

Dr. Knapp and the President concurred in the views expressed by the reader of the paper.

Dr. Dana said that the subject was of great economic as well as medical importance, and he would suggest that a committee be appointed to investigate the matter. This suggestion was then presented in the form of a motion, which was carried. The President then appointed as a committee Dr. Stedman, Dr. Dana, and Dr. Dercum.

A Suicide's Brain with Two Pistol-ball Wounds.—Dr. Burt G. Wilder, of Ithaca, exhibited a specimen and showed a dozen photographs of various aspects, and blackboard diagrams of the left side, and of a transverse section at the level of the fatal wound. W. I. B., a dentist, thirty-five years old, of Ithaca, N. Y., was found dead in his office on the 7th of April, 1894. A 0·22 revolver was clasped in his right hand. There were two bullet holes, one in the middle of the forehead and the other in the right temple, neither ball having emerged. In accordance with his written directions, the brain had been preserved in the museum of Cornell University as specimen 3,129. The first ball, presumably deflected by the skull, had passed caudoventrad to the cranial floor, and had been reflected dorsocaudad at nearly the same angle to a point just cephalad of the precommissure, where it had lodged, having merely abraded the mesial surface of the left frontal lobe. The second ball had entered at the right subfrontal gyrus, passed obliquely sinistro-caudo-dorsad, had torn the callosum and intervening structures, and emerged in the central second left central fissure. As there had been no suspicion of foul play, and documents in the deceased's handwriting had declared his intention to commit suicide, the case exemplified the possibility of two self-inflicted bullet wounds of one brain. The fissures presented many peculiarities. The most perplexing was the apparent coexistence of two central fissures on each side. The only two similar cases hitherto observed had been recorded by Giacomini and Calori. Suicide had been committed by a grandfather and one uncle, and attempted by another uncle.

Dr. Dercum had examined a large number of brains of the insane, but he had never seen such an instance as that presented by Dr. Wilder.

Dr. Dana said that he had no doubt that the anterior of the two fissures was the fissure of Rolando. The interruption of this fissure on one side by a bridging convolution was extremely rare and very interesting. The brain had presented a unique fissuration. He could not understand how a primary fissure like the Rolandic could be doubled in any event, and was skeptical of the genuineness of reported cases.

Infantile Hemiplegia; Imbecility and Epilepsy; Craniotomy; Marked Improvement.—Dr. Edward B. Angell, of Rochester, reported a case and read a paper with this title. He said that the salient features of the case had been a forceps delivery, succeeded by double ptosis, occasional tonic spasm of the right arm, and contracture and hemipalsy of the right hand. Physical and mental development had been slow, and epilepsy, with from three to five seizures daily, had supervened three months prior to the operation. At the time of the examination the child was partly imbecile. The skull measurement had given a cranial index of 0·77; the palate was high arched, the teeth were jagged, and the right wrist and hand, which were much smaller than the left, were helpless. A diagnosis had been made of pressure in the neighborhood of the hand center of the left motor area, due either to a hæmorrhagic plaque or cyst.

Craniotomy had been decided upon as a tentative measure, with a view of relieving the pressure and consequent symptoms, while avoiding the greater risk of opening the dura necessary to removal of the cyst wall. The operation had been performed on March 13th last, and upon removal of the trephine button a subdural hæmorrhagic cyst had been found. The cranium overlying the cyst had become very much thinned, and had been freely cut away beyond the limits of the cyst. By an aspirating needle half a drachm of fluid had been removed, otherwise the dura had not been injured. The scalp incision had healed readily, but owing to an over-tight bandage œdema had developed, and by the eighth day had caused sufficient pressure to develop a hard convulsion and high temperature. With the remedying of this, marked improvement in all the symptoms had ensued.

Up to the present time (three months after the operation) there had been no recurrence of the epileptic attacks, while there had been a commensurate improvement in the mental and moral condition.

Dr. Mills considered it presumable that the cyst which had not been opened was a porencephalic cavity, and that opening and draining it would have been useless.

Dr. Putnam agreed with Dr. Mills. He said it was rarely possible to remove a cyst satisfactorily. In a case seen by him the cyst had been tapped and the drain left in. Improvement had followed.

Dr. W. A. Hammond spoke of two patients on whom craniotomy had been performed. One was eighteen years of age, and had become an imbecile as a result of an injury to the head. He had remained in this condition for four years. After an operation there had been an improvement at the end of two months. At the end of a year the improvement had been marked. In the other case of a similar character the operation had been followed by improvement.

The President said that cysts differed in character. The superficial cysts were due to meningeal hæmorrhage during labor, and could be satisfactorily treated by operation.

Dr. Angell said this was not a case of porencephalus, but an arachnoid cyst from a meningeal hæmorrhage.

Infantile Amyotrophic Lateral Sclerosis of the Family Type.—This was the title of a paper by Dr. Charles Henry Brown, of New York. He gave the history and report of a case. The disease had occurred in a boy fifteen years of age. There had been marked emaciation, particularly in the upper part of the body, and paralysis and atrophy of all the facial muscles, except those of mastication. Fibrillary twitchings had been present all over the body. The superficial and deep reflexes had been active. Ankle clonus had been demonstrable. There had been double lateral curvature of the spine. Mentally, the boy was fairly bright. He cried readily and was amused at trifles. He was microcephalic, and acted and appeared like a child of ten. There were evidences of a general arrest of development. Dr. Brown considered his case as belonging to one of the family types of infantile progressive bulbar paralysis, plus the same implication that was found ingrafted upon the progressive poliomyelitis of adults which gave us amyotrophic lateral sclerosis. In muscular myopathies the respiration was not involved. The upper facial muscles were usually unaffected, and the "tapir mouth" was not observed. The atrophy was more irregular, more bilateral—that is, it was worse on one side. Electric reactions were not of especial importance in the diagnosis. In some reported cases of infantile progressive bulbar paralysis they were normal; in others there was degeneration.

To place this case among the scapulo-humeral, or facio-scapulo-humeral, types of muscular atrophy was out of the question. Though the neck was much thinned, the scapulo-humeral group and the back muscles were generally the best the patient had. What muscles he did possess were active, and the exaggeration of reflexes, the fibrillary twitchings, and the retractions of tendons that were present, though slight, precluded a peripheral origin of the disease. As far as was known, no case of the kind had ever been reported and diagnosticated as infantile amyotrophic lateral sclerosis of the family type. Hoffman's case, in a boy eleven years old, closely resembled it. Here, too, there had been marked labio-glosso-laryngeal paralysis, great emaciation of the upper extremities, of the trunk extending down below the hips, together with exaggerated reflexes in the lower extremities and diminished reflexes in the upper. In Hoffman's case the atrophy had probably been too extreme in the upper extremities to admit of much response. In all the cases reported of these bulbar diseases belonging to groups of family types there had been marked difficulty of respiration and special implication of the upper branch of the trifacial nerve.

Dr. Knapp showed a microscopic specimen from a case of amyotrophic lateral sclerosis which had occurred in a man fifty years of age. The disease had progressed very rapidly, and he had died at the end of fourteen months of broncho-pneumonia. There had been no bulbar symptoms. The section presented had shown marked vascularity in the sclerosed portions of the cord.

Dr. Putnam reported an analogous case of bulbar paralysis in a young child.

Dr. Preston, of Baltimore, had seen the case of a child, two years of age, in whom spastic symptoms, such as exaggerated knee-jerk and ankle clonus, had developed soon after an attack of acute poliomyelitis.

Ingravescent Cerebral Hæmorrhage Treated by Ligation of the Common Carotid Artery.—This was a joint paper by Dr. F. X. Dercum and Dr. W. W. Keen, of Philadelphia. In the first case reported the symptoms pointed to a slowly progressive capsular hæmorrhage lasting over three days before ligation of the common carotid had been resorted to. The symptoms had been steadily progressive, and threatened a fatal termination. Ligation of the carotid, as proposed by Mr. Horsley, had promptly arrested the symptoms, and the man had made an excellent recovery. Months afterward, merely symptoms of a spastic hemiplegia had persisted, but they had not been very marked. The second case had been one in which the symptoms pointed to a progressive hæmorrhage lasting eight hours. The patient's condition had been so grave at the time of the operation that little had been hoped from it, and indeed it had proved useless, the patient dying several hours afterward.

Dr. Dercum pointed out that the class of cases in which benefit was to be hoped for from ligation of the common carotid were those in which the hæmorrhage was decidedly ingravescent in type. He also dwelt upon the difficulties of a diagnosis between hæmorrhage and thrombosis in such cases, and pointed out that, even in case of an error in diagnosis, it could not be said that the operation involved additional risk to the brain. Finally, he suggested that, instead of ligation of the vessel, the expedient of compression of the common carotid should be tried in every case of apoplexy as soon as the physician arrived. A surgeon was not always at hand, and besides, compression of the carotid was so simple a procedure that a bystander could easily be instructed to apply it.

Dr. Frank Fry, of St. Louis, knew of several instances in which the operation had been done. All had proved fatal. He believed that none of them had been indicated or justifiable.

Dr. Knapp believed that the neurologist did not see the case until it was too late to make a satisfactory diagnosis.

The President thought the chief difficulty was in diagnosis, and that the hæmorrhage was usually a self-limited one.

Dr. Dercum said that the operation was only indicated where the diagnosis of ingravescent apoplexy was definite.

Merycism.—This was the subject of a paper by Dr. W. A. Hammond, of Washington. He defined this condition as the occurrence of rumination and remastication in the human subject. About fifty cases only had been reported. Several cases were referred to, among them that of the distinguished physiologist, Dr. Brown-Séquard, who had acquired it as the results of experiments performed upon himself. Another case reported was that of a young man whose mental condition had been impaired, and who had also been the subject of merycism. No special treatment had been undertaken against the merycism in this case, but the patient had been trephined with the purpose of improving his mental condition. There had been no unusual features connected with the operation, but it had been noticed that the regurgitation did not occur with the meals he had subsequently eaten until the fifth day, when there had been a slight return. Eight days later a similar button had been removed from the corresponding part of the left side of the skull. From that time (about ten months ago) to the present there had been no regurgitation. Whether the cure of merycism in this case had been directly due to the operations on the cranium, or the result of the mental improvement, was a question which it would be difficult to answer.

Dr. Knapp was unaware that so few cases had been reported in this country. Two cases had come under his notice. Both were in physicians in good mental condition. He thought a distinction should be made between congenital and acquired merycism.

Dr. Lloyd believed that some cases should be considered as a neurosis allied to hysterical vomiting, such as regurgitation from the œsophagus.

The President had seen a man who had conquered the habit by the exercise of his own will. His views were in accord with those expressed by Dr. Lloyd.

Dr. Hammond said that acquired merycism had always been due to overloading the œsophagus and to the bad habit of rapid eating. He was extremely doubtful as to its being a neurosis.

Chronic Chorea.—Dr. Lloyd, of Philadelphia, exhibited a large number of sections from the midbrain, pons, medulla, and spinal cord of a patient with chronic chorea.

New Inventions, etc.

AN AXIS-TRACTION FORCEPS.*

By T. J. McGillicuddy, M. D.

With this instrument we can make ideal axis traction during the entire passage of the fœtal head, with remarkable ease and safety.

In cases where much strength must be employed you can not perform axis traction properly with the common forceps, by Pajot's, Smith's, or any other manœuvre.

The advantages alleged for this instrument are:

1. That with its use axis traction is simple and uncomplicated.
2. That it is superior to Tarnier's in the fact that while using it axis traction at the superior strait is perfect.
3. That while in relation to Tarnier's instrument a great deal has been said of the indicator, in this forceps the indicator is in the hands of the operator and tells his *conscience musculaire* the direction of tractions as well as the resistance.
4. That it does away with the trouble of Pajot's, Smith's, or other methods, and with its use one has plenty of power and perfect control.
5. That it is easier to make rotation in the posterior positions with the adjunct handles, if it is thought best to use the forceps for that purpose.
6. That it is easy of application, and in its dual character it has the advantages of axis traction and the ordinary forceps, and saves the expense of buying two instruments where one will do.

The Tarnier instrument is complicated, cumbersome, and expensive, thus nullifying its good points, if it has any, and has been condemned by the Paris Obstetrical and Gynæcological Society for these reasons. Its theory may be very pretty and interesting for those who have not had much experience in forceps delivery, but practically it is a useless and harmful instrument.

No woman should be delivered except by axis traction, and with these axis-traction handles you can determine the exact amount of resistance and the proper amount of force to employ, and readily and easily use it.

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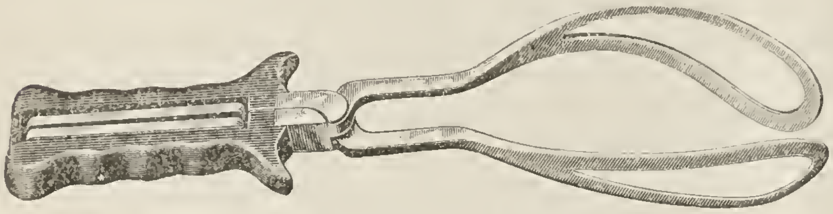
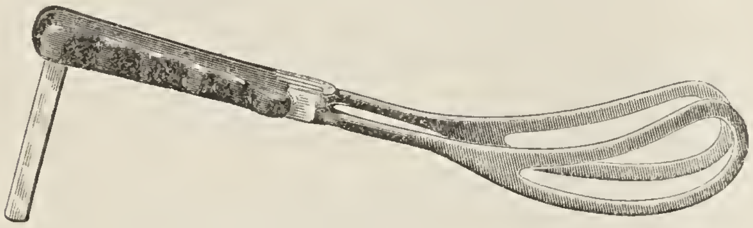
* Remarks before the Section in Obstetrics and Gynæcology of the New York Academy of Medicine, November 21, 1894.

Dr. Leishman, in writing of the long forceps and high operation, says: "It is now very generally believed by those who have had the greatest experience that a large proportion of the unfortunate results depend upon improper instruments, and especially upon the use of such as are deficient in power. The observations which on this point I have already quoted from Dr. Barnes apply here with peculiar force. Power and control are correlative factors toward the attainment of the result which we desire, and if there is a deficiency in the former we can have but little confidence in the issue of the case."



Showing axis-traction handles when not in use.

With this forceps we pull directly in the axis of the brim. One can not grasp the handles of the ordinary forceps with comfort with both hands and still make any great axis traction. Most physicians say that the hands become cramped and lose all their muscular power after pulling for a short time.



Side view. Axis-traction handles open.

In cases attended with some difficulty, who has not seen physicians with their feet placed against the side of the bed or the buttocks of the patient, hanging on to the handles of the forceps and pulling away with all their strength while bathed in a profuse perspiration?

These violent exertions are entirely wrong and unnecessary, as the arms alone should be used, and the body placed in a position where the traction can be easily arrested if there is any slipping of the blades.

It is the improper use of the wrong kind of forceps that makes it such fatiguing and dangerous work.

Miscellany.

Rheumatism of the Larynx.—The December number of the *Edinburgh Medical Journal* contains an article by Dr. G. Hunter Mackenzie in which he remarks that it is only within a comparatively recent period that attention has been drawn to the manifestations of rheumatism in and about the larynx. It may be internal or external or both, with corresponding modifications of the symptoms. Dr. Ingals, says the writer, defines rheumatic laryngitis as a "painful affection of the vocal organ attended by hoarseness and fatigue after talking, sometimes by grave obstruction of the glottis." Of the commoner forms he says: "For some years I have observed chronic painful affections of the larynx attended by no erosions or ulcerations, and by little congestion or swelling. They usually occur in persons of rheumatic diathesis; but often the larynx or the tissues about the hyoid bone present the only evidence of the constitutional disease." Thus, says Dr. Mackenzie, the symptoms dependent upon rheumatic disease within the larynx may be of a somewhat grave nature. Vocal defects are, however, those most commonly met with, and are usually dependent upon immobility of a vocal cord, owing to affections of the muscles concerned in its movement. In such a case the laryngoscopic appearances may be entirely negative. If, however, the disease is arthritic, and the crico-arytænoid articulation is affected, there may be more or less swelling and tumefaction of the mucous membrane over the arytænoid cartilages. It is of importance to note that laryngeal hæmorrhage may be of rheumatic origin.

Outside the larynx, rheumatism most frequently occurs as a muscular affection, and manifests itself by pain on pressure and on movement of the affected muscles. This variety may be coincident with the internal affection, and is more apt to be accompanied by rheumatic manifestations elsewhere, especially in the muscles of the neck and shoulders. Dr. Mackenzie cites the following case as an illustration of internal and external laryngeal rheumatism: The patient, a man thirty years old, had been suddenly affected with huskiness, the onset of which was coincident with the development of rheumatic pains about the neck and shoulders, about six weeks before the author had seen him. Slight discomfort was present during deglutition, and tenderness on pressure was manifested in the region of the hyoid bone and of the thyreoid cartilage. On laryngoscopical examination, there was found phonatory and respiratory immobility of the left vocal cord, which lay in the cadaveric attitude; there was puffiness over and about the left arytænoid cartilage. The voice was husky and easily fatigued. The patient was treated with stimulating inhalations and antirrheumatic remedies. A year later the vocal cord still remained immobile, but the puffiness had disappeared, and the vocal symptoms had partially subsided.

Immobility of the vocal cord, with consequent huskiness, says the author, seems to be one of the commonest manifestations of rheumatism of the larynx. There is, he says, sufficient evidence to show that the internal and external muscles are subject to rheumatism; that the symptoms, although slight and rarely grave, may be the source of much uneasiness to the patient, and that the resulting vocal defects may be persistent and sometimes permanent. Further, this local affection may exist without additional evidence of the presence of the disease, more especially when the internal muscles of the larynx are alone affected.

The treatment of such cases, says Dr. Mackenzie, ought to be general rather than local. Very little benefit follows the application of pigments and similar preparations to the affected parts, whereas a course of constitutional antirrheumatic treatment will almost invariably remove many of the disagreeable symptoms of which the patient complains. If, however, the crico-arytænoid articulation is affected, it is doubtful if the corresponding vocal cord will ever regain its normal range of movement, and the voice may be more or less permanently affected.

The Antitoxine Treatment of Diphtheria.—The *British Medical Journal* for December 15th contains an article on this subject by Dr. E. Klein, who remarks that the *rationale* of the method used by Roux for obtaining Behring's antitoxine seems to him difficult of acceptance from a theoretical point of view. This does not, of course, he says, imply that the serum which Roux obtains has not antitoxic powers; the chief difficulty of his method is, that horses require a very long and tedious series of numerous injections with enormous quantities of pure diphtheria toxine for the production of considerable antitoxic power. "Large amounts of pure diphtheria toxine," says Dr. Klein, "are introduced over and over again into a horse which has already by previous injections of the pure toxine been rendered, to a certain extent, resistant against this toxine, that is to say, a horse that has by previous injections of diphtheria toxine become more or less resistant must possess a corresponding amount of antitoxine in its blood." But, since the two substances—namely, toxine and antitoxine—are antagonistic and neutralize one another, it follows that each successive injection of a large quantity of pure diphtheria toxine into a horse must neutralize a proportionate amount of antitoxine already formed and present in the animal's blood. These considerations Dr. Klein says have led him to adopt a different plan in the preparation of antitoxine serum from the horse, and the principle of his method is as follows: By a few injections of the attenuated living bacilli—the attenuation is due to age of the culture—along with their toxine into the horse, this animal is endowed with a certain degree of resistance. Then large quantities of living diphtheria bacilli—without their toxine—taken from the surface of solid cultures of gradually increasing virulence, are repeatedly injected subcutaneously, so as to allow the bacilli to grow and to multiply, and gradually to produce within the body of the animal the toxine and ultimately the antitoxine. Every such injection is followed by a temporary reaction and a local tumor, but there is no suppuration at the seat of inoculation. As soon as the tumor disappears a new injection is made with large quantities of living bacilli scraped from the surface of solid media (agar-agar and gelatin). By the third week the animal will bear the scrapings from the surface of two whole agar-agar cultures of virulent character. If, after the first bleeding of the horse, it is again injected two or three times with virulent bacilli, the further serum obtained from such a horse possesses even increased antitoxic power. This serum, says the author, has been used on the human subject in cases of diphtheria, some of them very severe cases. It has been injected in doses of from five to eight or ten cubic centimetres, and in severe cases the injection has been repeated within twenty-four hours. The result has been highly satisfactory. In some severe cases it has been particularly striking, further spread of the membrane being entirely arrested, and rapid loosening and discharge of the existing membrane being also a conspicuous feature.

Idiopathic Dilatation of the Sigmoid Flexure.—The *British Medical Journal* for December 1st publishes a report of a recent meeting of the Clinical Society of London, at which Dr. W. P. Herringham presented the following case: The patient, a man seventy-eight years old, had been suffering for eight days with suppressed action of the bowels. At the end of that time the symptoms pointed to chronic obstruction. There had been a history of lifelong constipation and of a similar attack five years before, which had been overcome by a strong purgative. For the last six months his general health had been excellent, and the constipation has given place to regular action of the bowels. No stricture could be felt *per rectum*, or any tumor in the abdomen. There had been considerable distention, which seemed to involve the transverse colon. A diagnosis had been made of fæcal impaction or some non-malignant stricture above the rectum. Attempts had been made for two days to relieve the obstruction by purges and enemata, but on the third day the patient had become worse and an operation was performed, during which fæces were found in the peritoneal cavity. The patient died a few hours later. An enormous dilatation of the sigmoid flexure was found which covered almost the entire front of the abdomen. The inner surface was extensively ulcerated, and in several places it was black and gangrenous, and in others had given way, allowing of fæcal extravasation into the peritoneal cavity. There were old adhesions to the liver and to the omentum, and there was recent peritonitis. There had been no stricture and no mechanical cause could be discovered for the dilatation, which the old adhesions showed to have been of long standing. The intestines above and below the sigmoid flexure were natural.

Such cases, says Dr. Herringham, were extremely rare; only eleven similar cases could be found, three of which had been due to sigmoid dilatation. In one case fæcal impaction had explained the condition, but in the others no sufficient cause had been found.

Thymol as an Anthelminthic.—The *Lancet* for December 1st publishes an article by Dr. Prospero Sonsino, of Pisa, in which he gives an account of his success with this drug in the treatment of ankylostomiasis. In this disease, he says, it often acts like a charm, although in some rare cases he has had difficulty in ridding the intestines of the parasite by means of this remedy. In a case of this kind observed by him daily doses of sixty grains brought away in all thirty-one ankylostomata, nevertheless the stools contained eggs of this parasite in as great abundance as they had before the thymol treatment was begun. The author can not explain the cause of this, but thinks that it may be due to the circumstance that a certain number of worms are still hidden in the walls of the intestine or under the folds of the valvulæ conniventes in such a manner that the thymol may pass them without displaying its deadly action. These rare cases, he says, must not detract from the reputation of thymol as an admirable remedy in the treatment of ankylostomiasis, but he insists that its efficacy does not in any manner warrant the profession in proclaiming it as a remedy against all other intestinal parasites without adducing positive proofs of such efficacy in the case of each species of worm. While the expulsion of ankylostoma is the rule with thymol, the drug acts on the other worms only exceptionally, and in the greater number of cases it altogether fails to effect their expulsion.

As for trichocephalus, says the writer, it is known that there is great difficulty in obtaining its expulsion by any remedy, but after his first trials he entertained the hope that the new drug might prove to be an efficacious remedy against this worm. The ordinary seat of the trichocephali being the cæcum, the author tried using thymol as an enema, but, as this meant that the thymol must be given in solution, he feared it could not be used in such doses as would be efficacious as an anthelminthic without proving hurtful by absorption, for thymol introduced into the circulation is certainly a poison, even in small doses. When large doses are given, it is administered in powders, and if it is ever absorbed, it will be only in the minutest proportion. Vertigo and delirium are symptoms of its dangerous absorption; but they are met with only in rare cases after the administration of such doses as sixty grains.

With regard to the administration of thymol, the author thinks that the best way is to give it in powder inclosed in wafers or cachets. Tabloids, he says, are not of any advantage, because they must be given in numbers too great for the convenient administration of doses of several grains, and the direct contact of the drug with the mouth may prove hurtful, as it is an acid.

The Hotel Doctor.—The following sketch, in far greater conformity to the facts than is common in newspaper articles on medical topics, appeared in the *Sun* recently:

"Most New York hotels have a resident physician. He is known as the hotel doctor. He has nicely furnished apartments, all the latest instruments and books of his profession, and is considered an important person. The resident physician at the Astor House, the Fifth Avenue Hotel, the Gilsey, the Imperial, the Plaza, the Windsor, and other hotels of the same grade, treat the most important men in political and business life. Their patients also include some of the richest women in America, and their sons and daughters. Many of the physicians of the hotels have been men of recognized ability, yet inquiry the other day developed the interesting information that the profession at large regards them with certain peculiar notions. Furthermore, it was made clear that there is no real bond of sympathy between a hotel physician and his transient patients.

"'Professionally speaking, the life of a hotel doctor is not pleasant,' one of them said. 'Financially speaking, it has its advantages. Just how some physicians attach themselves to hotels is peculiar. The doctors who do this seem to be averse to enduring the early struggles of a young physician. We have all heard of young physicians in the country who spend their last dollar in hiring carriages in order to wheel madly through the town with the hope of impressing the residents with the size of their practice. There is method in such a course, and there is just as much method when a young physician in the city keeps his eye open for a hotel berth. As soon as this is found he gets together all his spare cash and hires a room in the hotel. He then gets permission of the proprietor to hang out his shingle.

"'In many cases physicians who started in early life with a hotel berth, merely to get transient patients and avoid the dull and heart-aching waits for practice, have continued on at the hotel until they are old men. Yet there is always a pang in their hearts. They are like many old bachelors who look around them and see their friends surrounded by happy families. There is a dull longing in the hearts of these old bachelors on such occasions. Just so the hotel doctor looks on his brother physicians with steady practice in families that have learned to regard them with fondness and esteem. As these hotel doctors grow older they continue fond of their ease. They do not have to go out at all hours of the night, in all sorts of weather. Their patients are right at hand, and there is little discomfort in their lives. Yet I never saw a hotel physician who lingered on in one berth until past the meridian of life who did not regret that he had not encountered the early struggles of young physicians, with the terrible grind, the anxiety for practice, and all the disadvantages of poverty, but with the knowledge that they are steadily climbing in their profession, and surrounding themselves with patients who become their truest friends.'

"The hotel physician paused in his story and then intimated that the great physicians of New York city were rather inclined to look down upon the men of the same profession who reside in the hotels, or at least upon those who have passed most of their days as hotel physicians.

"'These great physicians,' he continued, 'believe that we are actuated solely in our profession by money considerations. They do not believe that we have the profession at heart. They themselves believe in financial results, but the most of them aver that these are not the only considerations with them, and that they are students of every new feature in the profession for the profession's sake. They declare that we are not. If I had my life to live over again I would not be a hotel physician. I would go out and struggle, and have the regard and esteem of a class of permanent patients, and the honor that redounds to a physician in the broad field of his practice. I would advise all young physicians who begin a hotel career to continue in it only long enough to obtain money to keep them in the world until they can get a footing. We are not regarded as specialists or as great in any feature of the profession. We are simply at hand to attend to the passing ills of transient patients, who don't care a copper for us, and in whom we have only the ordinary professional interest. I can not speak too much of the tender relations that exist between the family physician and his old patients. It is one of the beautiful things in life, and one in which we hotel physicians have no part. I have attended many of the greatest statesmen and many of the most beautiful and accomplished women in the United States, but I doubt if they even remember my name, much less my appearance, and neither do I believe that they recall the help I gave them when they were in pain and distress. It is far different with the family physician. The husband and wife are grateful to him in the majority of instances until their last hours. Their children, and, in numberless instances, their grandchildren, hold fast to the old doctor, and if the doctor has a son they fasten to him, and so it goes on. There is a tie of friendship. It is similar to the confidence many families place in the old lawyer.'

"In other ways the hotel physician meets with unpleasant experiences. Many guests dislike to call in a strange physician, and do so only when their condition makes it absolutely necessary. There seems to be distrust of a strange or hotel physician, and innumerable instances were related where guests at some of the largest hotels in New York have risked death in order to get back home to their family doctor. These instances hurt the hotel doctors' pride, both as men and physicians.

"The hotel physicians of New York, though, are pleased at the more kindly spirit they observe among hotel proprietors in the event of a death in the hotel. Only a few years ago the death of a guest in a hotel was followed by summary action on the part of the proprietors. The body was hurried out of the hotel as quickly as an undertaker could be summoned. The hotel physicians say that this practice brought about many deaths, for the reason that sick people took all sorts of risks in getting to their homes, dreading to die in a hotel. Now, however, the average hotel proprietor is all kindness on occasions of death. Everything is conducted very quietly, but he assures the relatives that there is no need for unseemly hurry in removing the body. Many times the preliminary funeral services are conducted in the hotel.

"But this is a story about hotel physicians and their chances of fame and fortune. It is the advice of one of the oldest hotel physicians in New York city that young men starting in life would be far better off in the end if they took to the woods and built up a practice, instead of becoming hotel physicians and living in comparative ease and comfort, but without any of the real blessings of the profession."

Serum Therapy in the Treatment of Diphtheria.—At a recent meeting of the Paris *Société médicale des hôpitaux*, a report of which appears in the *Mercredi médical* for December 12th, M. Moisard gave an account of his observations among two hundred and thirty-one children who had been treated by this method during the months of October and November. Out of this number thirty-four had died, making the mortality 14·71 per cent., which, he says, is very much lower than that indicated by M. Roux in a recent communication, twenty-six per cent. The author thinks that this diminution should not be attributed to the greater benignity of the disease during these months, as it did not seem to him that the number of light cases was very much greater than that of the graver ones. He attributes the cause of the difference to the better management of the service, which enabled him to isolate not only those with broncho-pneumonia, but also all children suspected of pulmonary affections.

With regard to the general symptoms of serum therapy, they may be early or late. Sometimes, although rarely, the author has observed, during the first few hours following the injections, transitory symptoms of general reaction, of which the only outward manifestation was an elevation of temperature, which sometimes rose to 102·1° F., but this lasted only a few hours, without any morbid and alarming symptoms.

More important, says M. Moisard, are the cutaneous manifestations following these injections. They appear early or late, and may be accompanied by general symptoms and, in some cases, by arthropathy sufficiently intense and lasting to simulate an attack of subacute articular rheumatism. Out of thirty-three cases, the writer had observed in fourteen urticaria, in nine erythema scarlatiniforme, in nine erythema polymorphum, and in one purpura. Urticaria was the most frequently observed by the author. It appeared at different times; sometimes, although rarely, several hours after the injection, sometimes two or three days, or even from ten to fifteen days after. It was more or less generalized and was not ordinarily accompanied by fever or general symptoms, and very little uneasiness or insomnia existed. This, says M. Moisard, is the least serious eruption due to the serum, but it may produce rather intense general symptoms. Quite different is the erythema polymorphum which was observed in the other cases. If, he says, in certain cases it appears without any general manifestation, with only its classic characteristics, in other cases its appearance is accompanied by more striking manifestations, and by general symptoms sufficiently intense to alarm any one not forewarned. M. Moisard advocates the preventive injections, which have given, in his hands, such excellent results. At the Trousseau not one of the children who had been thus protected and left in contact with those suffering from the disease had taken it.

With regard to the accidents due to serum therapy, M. Moisard remarks that this method has a few disadvantages that are of slight importance and do not detract in the least from the value of M. Roux's and M. Behring's discovery, but he thinks it is well to know them. With regard to the local punctures, the accidents are exceptional. After six hundred injections made during the months of October and November, only one abscess had been observed. The child had received five injections, and the last one had been followed by the abscess, which had healed rapidly after incision. Rigorous asepsis of the skin and of the instruments explains the rarity of these local accidents among children, many of whom had received as much as 120 c. c. of the serum during the course of the disease. Aside from this, the author had observed only a slight sensitiveness, which generally persisted for twenty-four hours, and a transitory erythema around the inoculated spot. The general accidents, without being very frequent, are, however, sufficiently marked, and they indicate very clearly a true toxic action of the serum. The serum taken from certain horses has evidently, says M. Moisard, a more marked toxic action than that taken from others.

In an article on the same subject, published in the *Lyon médical* for December 16th, M. Rabot, physician to the Charité, gives an account of forty-seven cases that have come under his observation. Twelve of the children had laryngeal stenosis and were treated with the serum; one had been cured by this method alone, the others having been subjected to intubation. In five other cases the author had not been able to employ the serum, and only one patient had recovered. The thirty remaining patients had angina and croup, and the serum was used with the same results. Only sixteen out of the forty-seven died, making the mortality thirty-four per cent. The author considers this a brilliant result, as formerly it had not been far from fifty per cent., which was the mortality in 1893. This, in a service which is capable of treating five hundred patients in a year, is, he says, a result not to be disdained. The direct cause of death in his patients was uræmia. Fourteen of them died during convalescence; one was brought to the hospital in a dying condition with paralysis of the pneumogastric nerve, and one died on the eighth day. Those with croup died from pseudomembranous bronchitis, three with broncho-pneumonia, and another with convulsive uræmia. Those who recovered had had paralysis of the velum of the palate and albuminuria. In one case urticaria set in eight days after two injections of the serum. The method of treatment was by the employment of serum, the suppression of carbolic-acid spraying, which was replaced by salt water, ice, and lavage with a solution of salicylic acid; the use of slices of lemon peel was continued. No alcohol was given.

With regard to the preventive treatment, the author cites the following case: A child at the Sainte-Jeanne had a very serious attack of diphtheria, and one of the sisters, who was accustomed to nursing such cases, isolated the child and made a culture which was distinctly diphtheritic. The author, who was very much concerned at the appearance of such a malignant case in the general service, immediately administered an injection of serum to each child, and not one of them took the disease.

The Ohio Pure-Food Law and "Vin Mariani."—It is probably known to many of our readers that the zeal with which the law has been administered had among its recent results the arrest of a well-known Cincinnati druggist on the charge of having violated the pure-food law by selling Mariani's wine of coca, commonly known as "vin Mariani." The Pure-Food Commission's chemist, Professor Charles T. P. Fennel, held that the preparation was "not up to the standard within the meaning of the law." The law says: "An article shall be deemed to be adulterated within the meaning of this act: (1) If, when sold under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality, or purity laid down therein. (2) If, when sold under or by a name not recognized in the United States Pharmacopœia, but which is found in some other pharmacopœia or other standard work on materia medica, it differs materially from the standard of strength, quality, or purity laid down in such work. (3) If its strength, quality, or purity falls below the professed standard under which it is sold."

The commission's procedure, hasty and summary as it seems to have been in this instance, attracted wide attention by reason of the copious references made to it in the newspapers and on account of the great esteem in which the preparation had been held for many years. Consequently M. Mariani and his associates and representatives in business suffered an injustice —unintentional, no doubt, so far as the commission and its chemist were concerned, as is shown by the fact that Professor Fennel has since acknowledged formally that an error was committed.

A Proposed Memorial of the late M. Charcot.—The pupils and former associates of Charcot in Paris and throughout France are engaged in raising a fund for the erection of a bronze statue of him in the Salpêtrière. This movement is now receiving cordial and material support in Germany, in England, and in Italy. It has therefore seemed desirable to the neurological societies of New York and Philadelphia that the profession in America join in this testimonial as an evidence of the eminent services of Charcot in neurology and in medicine. For this purpose the undersigned have been appointed a committee to bring the matter to the attention of the profession and to receive contributions, which will be duly acknowledged and forwarded to the central committee in Paris. It is request-

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YOUNG, HUGH H., M. D., Baltimore.
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THE NEW YORK MEDICAL JOURNAL, JANUARY 12, 1895.

Original Communications.

THE USES AND ABUSES OF ANIMAL EXTRACTS AS MEDICINES.*

BY HENRY HUN, M. D.,
PROFESSOR OF DISEASES OF THE NERVOUS SYSTEM IN THE ALBANY MEDICAL COLLEGE.

It was with much pleasure that I accepted the invitation, so kindly extended to me by your president, Dr. Stover, to read a paper before the Amsterdam Medical Society, and I devoted not a little time to considering various medical topics which might be made the subject of the paper. Finally it seemed to me that a discussion of The Uses and Abuses of Animal Extracts as Medicines might prove of interest and profit to us all, inasmuch as it is a subject which has attracted much attention during the past year or two, and seems destined to be the central point of therapeutic investigation in the immediate future.

A great variety of these animal extracts have already been tried in medical practice and the subject is so large that we can treat it only in outline. We will commence with a consideration of those extracts which seem to have been introduced in accordance with the old popular saying that "it takes a part to make a part." It is a very old form of treatment. It is stated in Pliny that among the Greeks and Romans in cases of impotence the semen or testicles of asses were swallowed. Galen's preparations of castor and musk have been used during centuries, and from his time down to the present day numerous examples can be found in the history of medicine of this kind of therapeutics. A few years ago Babes, in Bukharest, and Constantin Paul, in Paris, revived this form of treatment, and it has been exploited in this country with great zeal, not so much so by the physicians as by a stock company in Washington; and in many of the daily papers we can read the advertisement of "cerebrine" (extract of the brain), "medulline" (extract of the spinal cord), "cardine" (extract of the heart), "musculine" (extract of the muscle), etc., made according to the formula of Dr. William A. Hammond. For my part, I must confess that, eager as I am to try anything which may benefit my patients, I have no personal experience with these extracts. Among the reports of their action that I have read, I have not found one that seemed to offer me a probability of success; while Stockwell † has disproved, by careful experiments, Hammond's views in regard to the action of cerebrine.

Practically, then, I can find no support for this plan of treatment, and theoretically it seems to me to be the most arrant nonsense. There is not only no reason to believe that the tissues are built up by the same tissues taken into the body in food, but we know the contrary. A baby may take nothing but milk, yet nourishes from it brain tissue and heart muscle. When it is an older child, or an adult, it takes more varied diet, but it practically never eats brains or hearts. As far as we know anything of animal chemistry the proper food for the nerve cell or the heart is the blood serum, which does not contain cerebrine or cardine. It is in the breaking up of the complex, unstable molecules in the blood serum and the consequent formation of simpler and more stable molecules that nerve force is produced. Cerebrine and cardine are not definite chemical compounds and, as far as they represent at all the chemical constituents of the brain or the heart at any one instant of time, consist as much of waste products, the results of cerebral or cardiac action, as of the nutritive constituents of the blood serum which may maintain such action. To suppose that a sclerosis of the posterior columns of the spinal cord can be made to disappear in some mysterious way by the administration of an extract of the nervous tissue is to give up all the knowledge of the chemical processes within the body so laboriously obtained by medical science, to return to the deepest mysticism in medicine, and to bring the healing art into disrepute. It seems to me that the attempt to cure a diseased organ by supplying a healthy one in the food has no support either in theory or in practice and is one of the chief abuses of animal extracts.

Somewhat allied to the extracts just considered are extracts of tissues which are supposed to possess especially strong chemical or vital (?) force, such as the spermatic fluid, or extract from the testicles, and nuclein derived from the nuclei of cells. It is conceivable that these highly potent chemical substances might, when injected into the body, increase the activity of the tissues generally. The spermatic fluid has, as we well know, the power of starting a wonderful series of activities by which a new life is generated, a new being produced. Furthermore, the removal of the testicles of an animal produces a decided alteration in its appearance and character which can only be regarded as a deterioration. In this case it would not seem impossible that some of the secretion of the testicles was absorbed into the system normally and affected the general nutrition of the body. There would seem, then, to be some reason for thinking that the extract of testicles injected into the system might have some effect in improving the nutrition generally.

This possibility, taken in connection with the distinguished name of the discoverer and advocate of this treatment, Brown-Séquard, secured from the outset a widespread adoption of it. This treatment rolled in a great wave over the whole world. It was tried everywhere, and many an old man died of septic infection from the injections; but good results from it were few and of a very uncertain nature, and in a few months the craze about it was a thing of the past. Doubtless in many cases the extract was improperly prepared and improperly used, but even the results obtained by Brown-Séquard himself, or by Pöhl with injections of his "spermin" (which he finds in a great many of the internal organs besides the testicles), are most indefinite and unsatisfactory and are expressed most unscientifically, as far as I have seen them reported; while the reports of failures with this method of treatment are very numerous.*

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* Read before the Amsterdam, N. Y., Medical Society, December 4, 1894.

† *Medical News*, Aug. 26, 1893, p. 231.

It is not impossible that nuclein taken into the body might exercise a general tonic effect upon it. It is the most active principle of the cells which compose the various tissues of the body. Vaughan has devoted much study to the preparation and therapeutic action of nuclein. It has been proved by him to have a germicidal action on many bacteria,† and he has offered some evidence that it is of therapeutic value.‡ It can be obtained from the spleen, the thyreoid gland, the testicles, and other animal tissues, but, according to Vaughan, it is most conveniently extracted from a pure culture of yeast by a dilute solution of potassium hydrate. From this solution other proteid bodies are first removed by precipitation with dilute acetic acid. Then nucleinic acid is precipitated by the addition of hydrochloric acid and alcohol. It is purified by repeated washings and precipitations. Such a preparation is now made and sold by Parke, Davis, & Co. At the present time it has not been tried long enough for any correct judgment to be pronounced as to its value, but it is certainly worthy of a careful and extended therapeutic trial.

Turning now from these extracts, which have either no therapeutic value at all or whose value is yet to be proved, we shall consider other extracts whose value is so striking that it can be proved with the greatest ease. There are a great many secretory glands in the human body, and each one of these probably supplies a secretion which fulfills a more or less useful purpose. When any secretory gland fails to do its work it may be of the highest importance to supply to the body from without this lacking secretion. Such a procedure is perfectly rational, and for many years it has been an established practice to give in cases of difficult digestion an extract from the mucous membrane of the stomach—"pepsin"—or an extract from the pancreatic gland—"pancreatin"—or, more rarely, dried ox bile.# The widespread use of pepsin and pancreatin proves that in many cases they are of value. Doubtless their employment has been much abused. There is nothing curative in them. In cases of gastric catarrh or of abnormal gastric secretion we can bring about a more rapid and more pronounced cure by the bitter tonics, the alkalies, and by other methods of treatment. Nevertheless, in many cases pepsin and pancreatin are of distinct value, and when the normal gastric secretion is temporarily or permanently absent, the temporary or permanent use of these extracts is strongly indicated, not to bring about a cure, but to supply a secretion which is absent and thus to maintain a digestion which would otherwise be imperfect or impossible. The use of pepsin and pancreatin is well known and firmly established, so that we may leave this portion of our subject without more extended discussion and hasten on to an even more striking instance of the use of animal extracts.

Some ductless glands, which are therefore not secretory glands in the ordinary sense of the word, have the duty through their products entering the blood, probably by way of the lymphatics, of modifying the chemical character of the blood and thereby of exercising an influence on the nutrition of the entire body. Among such glands the thyreoid occupies a prominent position. Concerning the functions of the thyreoid gland nothing was definitely known fifteen years ago. We now know, however, that when the thyreoid is completely removed by a surgical operation, or is congenitally absent, or is atrophied, or its function is destroyed by disease, a very curious set of nutritive changes take place throughout the body, which you may find described at length in a paper published by me in 1888,* and which make up a clinical picture of a disease called "myxœdema," or "cachexia strumipriva," or, when congenital, "cretinism." Now, when the thyreoid gland of a healthy animal, such, for instance, as that of a sheep, whether in the form of a glycerin extract or of slices slightly cooked, or in the more convenient and more permanent form of the powdered desiccated gland, is given to a patient suffering from myxœdema, all the symptoms of the disease disappear with a certainty which is rare in medical practice, and is not found to be the case in any of the extracts previously mentioned. The reports of this form of treatment show a wonderful uniformity of favorable results. I reported in the *Albany Medical Annals* of January, 1894, two cases of myxœdema cured by the administration of the powdered gland. Of course, in such cases it is necessary to supply the thyreoid gland to the system at intervals of a year, more or less, throughout life.

While the thyreoid gland is being administered most patients exhibit a certain degree of exhilaration, so much so as to suggest the idea that the gland might be of use in melancholia. In one case of circular insanity, by administering the thyreoid gland I transformed the case almost instantly from the stage of melancholia into that of mania. I then wrote to a friend in one of the State hospitals for the insane requesting him to give it a trial in cases of melancholia. The results which he obtained were not, however, very definite; but in a recent number of the *Lancet* Dr. Macphail and Dr. Bruce † reported a series of cases of various forms of insanity treated with large doses of thyreoid extract in which the results were both surprising and gratifying.

Another effect of the administration of the thyreoid gland is, in the majority of cases, a rapid and large reduction in weight, so much so that it has been frequently used with this aim alone in view. I have tried it now in some half a dozen cases of obesity, and know of no more potent drug for this purpose. It must, however, be given with caution, as sudden death from cardiac paralysis has been known to follow its administration, and I have seen it disturb the heart's action very much in several cases. Lately it has been claimed that the thyreoid extract will cause the

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* Fürbringer. *Deutsche medicinische Wochenschrift*, 1893, p. 293, 318.

† Vaughan. *Medical News*, 1893, vol. ii, p. 393, 421.

‡ Vaughan. *Journal of the Amer. Med. Association*, 1894, vol. i, p. 823.

# Porter. *Medical News*, 1891, vol. i, p. 481.

* Hun and Prudden. *American Journal of the Medical Sciences*, July and August, 1888.

† *Lancet*, October 13, 1894, p. 846.

disappearance of a goître.* It does not seem easy to reconcile this statement with our present ideas in regard to the physiological action of the thyreoid secretion, and the claim needs confirmation by other observers before it can be accepted. I believe, however, that the thyreoid extract will be found to possess other therapeutic uses besides those already discovered.† It is probable that in time the functions of other ductless glands besides the thyreoid will be discovered, and that diseases dependent upon the failure of action of these glands will be cured by the administration of their extracts.

Let us now turn from the glands to analogous bodies. We know that the marrow of the bones is an organ in which the red blood-corpuscles are formed. Pernicious anæmia and leucocythæmia are two diseases which terminate fatally, and which present as the principal symptom a great deficiency in red corpuscles. During the past few months cases have been reported of complete and rapid cure of both of these diseases by feeding with bone marrow.‡ Doubtless some of these cases have been reported too soon, and the improvement may not be permanent,# and much further proof is needed before the curative effect of bone marrow in these diseases can be regarded as established; but the outlook is bright that these two diseases, hitherto regarded as absolutely fatal, can be cured by this simple means. If the bone marrow is found by experience to possess therapeutic value, it will probably prove of use in all cases of anæmia. In chlorosis, where a deficiency of hæmoglobin rather than a deficiency of corpuscles is the fault, the preparations of iron will probably maintain their supremacy as curative agents. Nevertheless, I have recently obtained very rapid and decided improvement in a case of chlorosis to which I administered bone marrow, although Blaud's iron pills had been taken for a long time previously without decided effect.

We have now considered the principal animal extracts which have been obtained from the healthy animal and which have been employed in the treatment of diseases. There remains for us to consider those animal extracts which can be obtained only from the diseased body. This subject is only in its infancy, but it has already given results which seem destined to revolutionize the practice of medicine. As the result of a large number of experiments on animals, it seems now to be pretty definitely settled that pathogenic bacteria, introduced into the body, disturb the system *locally* by their growth and generally by certain poisons (toxalbumins), which are produced by their growth. Usually the general symptoms are much the more severe, and are those which cause the fatal termination, if death occurs. It also seems to be pretty definitely settled that in the germ diseases there is formed in the blood serum a chemical compound, which not only neutralizes and destroys the toxalbumin, but, when injected in sufficient quantities into a healthy animal or man, renders him immune for the corresponding disease, and in larger quantities is even capable of curing an animal or man sick with the disease.

The last of the animal extracts which we have to consider are these antitoxines, which are prepared in the following manner:* A large flask of nutritive bouillon is inoculated with a little of the pure culture of diphtheria bacilli, and these are allowed to grow at a suitable temperature. After about a month the bacilli are killed by adding half of one per cent. of carbolic acid. The dead bacilli fall to the bottom of the flask, and the fluid above them contains the diphtheria poison. A small quantity of this diphtheria poison, less than the dose which is found certainly to kill the animal within three or four days, or else this fatal dose mixed with some trichloride of iodine, which acts as a kind of antidote to the poison, is injected into an animal. The animal reacts to the injection by fever, by œdematous swelling at the point of injection, and, what is most important, with the production of antitoxine. After the animal has fully recovered from the first injection, a second is made containing a little more of the poison, or a little less of the trichloride of iodine, and after the animal has entirely recovered from the second injection a third is made. With each injection the amount of the specific antitoxine in the blood is increased, and the injections are continued until the blood contains the required amount of this specific body.

From time to time the blood of the animal is tested to see how strong the antitoxine in the serum is. Ten times the minimum dose, sufficient to cause the death of the animal in three or four days, is mixed in a reagent glass with a varying quantity of the blood serum, and, after thorough mixture, it is injected into the animal; and that amount of blood serum which is sufficient to prevent the animal from showing any symptoms of disease is the amount which is necessary to neutralize the tenfold minimum dose of the diphtheria poison. In order to get some way to measure the antitoxine in the blood, a so-called normal serum is taken as a standard. Of this normal serum, one tenth of a gramme is sufficient to neutralize completely a tenfold amount of the minimum dose of the poison, and one cubic centimetre of this "normal serum" is said to contain one "immunity unit."

It is found, in order to cure diphtheria in children, that a serum containing five hundred immunity units is needed —that is, ten cubic centimetres of a fiftyfold normal serum, or five cubic centimetres of a hundredfold normal serum, must be used. When the blood of an animal, subjected to increasing injections of the diphtheria poison, is found by experiment to contain the requisite amount of antitoxine, the animal is bled largely. The blood is received in sterilized vessels and put into an ice chest until it has coagulated. The clear serum separated from the clot is mixed with half of one per cent. of carbolic acid in order to keep it, and is then ready to be used for the cure of diphtheria.

The injection of this serum is perfectly harmless; it can be injected in large doses, and exercises no influence on the

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* Bruns. *Deutsche medicinische Wochenschrift*, 1894, No. 41, p. 785.

† Bramwell. *Atlas of Clinical Medicine*, vol. iii, part 1.

‡ Fraser. *British Medical Journal*, June 2, 1894.—Bigger. *Lancet*, September 22, 1894.

Goldscheider. *Deutsche medicinische Wochenschrift*, 1894, p. 377.

* Much of what follows is taken with modifications from an article by Kossel, *Deutsche medicinische Wochenschrift*, October 25, 1894, p. 823.

temperature, or on the kidneys, or on the heart. There have been no unfavorable symptoms observed from its use. The effect of the injection in cases of diphtheria is most marked on the general symptoms. A few hours after the injection the temperature begins to fall, the pulse also falls, and in the course of twenty-four hours in recent cases the temperature and pulse return to normal. The local trouble in the throat is also decidedly influenced, but not so rapidly. The action of the antitoxine manifests itself locally by a more rapid exfoliation of the membrane. Perhaps the next day after the injection more membrane will be seen in the throat than at the time of the injection, but the membrane has only appeared on parts which the day before were reddened and swollen and had already been invaded by the disease. Twenty-four hours later it will be evident that the process in the throat has not extended, and that the membrane is beginning everywhere to be cast off. The injection is best made at the lower part of the axilla, where relatively large amounts of fluid can be injected and readily absorbed, and the injection should be made with an antiseptic and sterilized syringe. The antitoxine is made under the direction of Behring and Ehrlich,* and is sold in three varieties of bottles. The entire contents of each bottle are to be injected at one time, and each one possesses a different strength.

No. 1 contains six hundred immunity units, and suffices for recent cases in children in the first or second day of the disease.

No. 2 contains a thousand immunity units, and is used in more severe cases, or in cases of more than two days' standing, or in those in which the larynx is involved.

No. 3 contains from fifteen to sixteen hundred immunity units, and is used in adults or in very severe cases in children.

The other members of the family can be made "immune" during a month or two by injecting a quarter of the amount of No. 1. It is better to inject the full dose needed in any case at one time rather than to divide it into two doses.

Kossel † states that among the children, suffering from all forms of diphtheria, brought to be treated with this serum at the Institute for Infectious Diseases in Berlin, the mortality has been reduced to sixteen per cent. All the children that were treated on the first or second day of the disease recovered, so invariably so that Kossel is now convinced that it is possible to cure every recent case of diphtheria by employing a suitable amount of antitoxine. Katz, ‡ in one of the children's hospitals in Berlin, among a hundred and fifty cases treated in this way, found a mortality of sixteen per cent. Roux,# in Paris, reports that of four hundred and forty-eight children treated with antitoxine, there was a mortality of twenty-four and a half per cent., while at the same time five hundred and twenty cases of diphtheria treated by other means showed a mortality of sixty per cent. In cases of simple diphtheria, not requiring tracheotomy, the mortality was thirty-four per cent., but among similar cases treated with antitoxine the mortality was twelve per cent.

A great many other cases have been reported in smaller numbers by a large number of observers and the results have been most favorable, so that this method of treatment seems to be a great advance on any other. Of course, it has not been tried long enough yet for us to get a correct estimate of its value; but it is probable that with more extended experience in the use of antitoxine, with better methods in its preparation, we will be able to get a stronger antitoxine and produce better results than even those which have already been obtained, so that this form of treatment, as far as we can judge, has a most brilliant future before it. Experiments have been made with the aim of producing the antitoxine in other ways, either from blood serum or entirely independent of this fluid,* but as yet they have not been successful.

Tetanus is a disease which has been treated by its antitoxine in exactly the same way as diphtheria. But tetanus is comparatively rare, and when the muscular spasms (the diagnostic symptoms) are observed, the disease has already been in existence a considerable time, and even at that late stage it is in most cases difficult to get the antitoxine promptly, so that the statistics at present in regard to this method of treatment are conflicting, and no true estimate of its value can yet be formed.

If the antitoxine treatment of diphtheria proves successful, there is no apparent reason why other infectious diseases can not be cured in the same way, and the experiments which have already been made, not only in cases of tetanus, but in cases of pneumonia and typhoid fever as well, although as yet few and not convincing, give promise of a bright future in this department of therapeutics.

The attempt to convert the toxine of a germ into its antitoxine, or by the application of a suitable degree of heat to the toxalbumin solution to destroy the toxine and to leave the antitoxine intact, and then by injecting this altered product of bacterial growth to cure the corresponding disease, although closely allied to our subject, yet, strictly speaking, does not form a part of it, for it is not an animal extract.

If we summarize the conclusions arrived at in our short consideration of the animal extracts we may say: 1. That the attempt to cure a diseased organ by supplying a healthy one in the food has no support either in theory or in practice. Such therapeutics is an abuse of the animal extracts.

2. That the administration of extract of the testicles has a slight support in theory, but has no sufficient support in practice, and must be regarded as an abuse of animal extracts.

3. That nuclein has not been sufficiently tried to allow us to form any estimate of its value.

4. That the digestive ferments have a distinct but

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* The antitoxine of diphtheria is also made under the directions of Aronson and sold by E. Schering.

† *Deutsche medicinische Wochenschrift*, Oct. 25, 1894, p. 823.

‡ *Berliner klinische Wochenschrift*, July 16, 1894.

# *British Medical Journal*, 1894, No. 1765, p. 931.

* Smirnow. *Berliner klinische Wochenschrift*, 1894, p. 683.

limited therapeutic value. Their administration is in many cases useful, but often degenerates into an abuse.

5. That the extract of the thyreoid gland is of the greatest value in myxœdema and cretinism, and has also a decided value in the reduction of obesity, and has probably some value in the treatment of insanity. It must certainly be classed among the useful extracts.

6. That bone marrow will probably be found to be of value in cases of anæmia and leucocythæmia and perhaps in cases of chlorosis also. It is as yet too early to decide as to its uses and abuses.

7. That in the antitoxine extracted from the blood serum, or in the "blood-serum therapeutics," as it is often called, we have decided evidence that we possess an agent of great value in the treatment of diphtheria, and we have every reason to hope that it will prove of value in the treatment of all forms of the infectious diseases. It is a line of treatment that can hardly be abused and seems to have a wide field of great usefulness.

We have thus completed, although in a very fragmentary manner, our general survey of the field of "animal-extract therapeutics." It constitutes, I believe, the most remarkable advance that therapeutics has ever made. Hitherto it has been based almost entirely on empiricism, and the wonderful achievements of the various medical sciences have either left therapeutics unchanged, or have merely stripped from it some of its supposed powers. It has been the opprobium of medicine, and because it has had no definite basis charlatans and cure-alls have multiplied. But in the department of animal extracts there are now substantial theories and many correlated scientific facts supporting the therapeutic measures. For the first time the therapeutic art stands on a firm scientific basis, and has before it the possibility of developing and growing in a regular and orderly manner. Already under these new and better conditions it has achieved results that were before impossible, and, what is more important, it is in the proper scientific path; it has adopted scientific methods; it is able to reason, to predict, to grow, and it seems certainly to have before it a brilliant future, the limits of which no one may venture to predict.

THE DIFFERENTIAL DIAGNOSIS OF TRAUMATIC INTRACRANIAL LESIONS.

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(*Concluded from page 14.*)

Case X.—Male, aged thirty-one years; was struck by a brick which had fallen five stories; no other immediate general symptom but unconsciousness. A compound depressed fracture crossed the median line at the vertex. Second day: there was accurate memory of events up to time of injury, no recollection of anything that occurred afterward. Third day: fragments of depressed bone were removed, leaving an opening in the skull two inches by an inch and a half in its diameters; no lesion of dura or of the sinus. Temperature on admission 104·4°, at time of operation 100°, subsequently 99°+. Pulse and respiration at all times normal.

Case XI.—Male, aged thirty-two years; fell from his truck and struck the pavement upon the back of his head; partial loss of consciousness and delirium, which continued for three days. Fourth day: limited power of comprehension, no response to questions asked, attention fixed only with difficulty, occipital headache which was not increased by pressure or percussion, and somnolence. At the end of four weeks the patient sat up, but walked with difficulty on account of imperfect muscular co-ordination in both legs; patellar reflexes normal; mind clear but slow in action, which he himself noted; vertigo, which was not of previous occurrence; occipital headache relieved. Dr. P. A. Callan discovered upon ocular examination a neuritis, more advanced upon the right side than upon the left, and a paralysis of the ocular muscles. Temperature on admission was 99°, rose to 100·4° on the same day, was from 99° to 101° till the sixth day, 98·5° to 99°+ till the twenty-first day, and afterward continuously normal. The pulse was normal. The respiration was 12 for three days, 16 to 18 for six days, 8 to 12 for thirteen days, and afterward 16 to 20.

Case XII.—Male, aged thirty-five years; fell one story; brief unconsciousness followed at once by delirium; extensive lacerated wound in left parietal region; hæmorrhage from left ear caused by wounds of external meatus. Temperature on admission, 101·5°; pulse, 80; respiration, 18. Delirium continued three weeks, gradually diminishing in degree and constancy; no subsequent recollection of the manner of injury. Loss of urinary control lasted one week; no headache at any time, and no later symptoms. Patient recognized his family and surroundings after three or four days.

Case XIII.—Female, aged five years; struck by a falling box which seemed to have crushed her head laterally against the floor. Still unconscious at time of admission, but very sensitive to external irritations; slight twitching of right side of the face, slight epistaxis, slightly accelerated respiration, slow and irregular pulse; temperature, 95°; pupils sometimes normal, sometimes widely dilated, with conjugate deviation which was sometimes upward and sometimes to the left; vomiting soon after reception of the injury; hæmatoma over entire vertex, and contusion of both eyes. Incision disclosed fissures on either side of the calvarium; one extended from the left temporal fossa posteriorly across the vertex to the right occipital region, and anteriorly into the anterior fossa; another, apparently beginning in the right anterior fossa, crossed the right parietal bone and terminated in the first. The bone was depressed posteriorly and the fissure open; after elevation and removal of some small fragments considerable epidural hæmorrhage was apparent. Consciousness was fully restored within twenty-four hours, and was marked by restlessness and delirium, which continued for two or three days, after which the mental condition was normal. On the fifth day paraplegia occurred, which was almost complete from the first, and absolute on the next day, with partial anæsthesia; no paralysis of the bladder or rectum. The paraplegic condition began to improve at the end of a week's time, but very slowly; a few steps could be taken without assistance six weeks later. The temperature soon after admission rose from 95° to 98·5°, on the next day to 100·2°, and after the third day varied from 98·4° to 99·8°; usually normal in the morning. The respiration was accelerated for the first ten days, and the pulse frequent for three days.

Case XIV.—Female, aged thirty years; was thrown from a wagon while driving, striking the back of her head upon an asphalt pavement; shock, loss of consciousness for twenty minutes, and severe vomiting, which persisted during the day; temperature, 100°; not taken afterward; hæmatoma in right occipital region, and ecchymosis behind the right ear, followed by severe localized pain in the right side of the head posteriorly. The later symptoms were a muffled feeling in the right ear, with diminished hearing and blunted perceptions of taste and smell which had been noted from the time of the accident. The disorders of hearing did not continue after the fourth week, but the senses of taste and smell have been permanently impaired.

CASE XV.—Male, aged thirty-three years, struck on the head with a hammer and was momentarily unconscious, after which he walked to the hospital. Compound depressed fracture of the mid-vertex; both pupils dilated; left radial pulse markedly fuller and stronger than the right till after operation, five days later; no other general symptoms. Depressed fragments of bone were removed, leaving an opening in the skull an inch and a half by one inch in its diameters; hæmorrhage from a large wound of the longitudinal sinus controlled by gauze packing. Pulse and respiration became normal on the following day, and radial pulsations symmetrical on the third day. Elevation of temperature was maintained by a slough and inflammatory conditions produced by an accidental burn. Temperature on admission was 99·2°, rose in a few hours to 101·4°, and after the operation to 102°+; pulse and respiration, normal at first, were subsequently only moderately accelerated.

CASE XVI.—Male, aged thirty years; fell twenty-five feet from a ship's deck to a raft alongside; consciousness lost for a few moments only; hæmatoma over right posterior parietal region; moderate contraction of the left pupil; right radial pulse fuller than the left; urine retained; complete paralysis of left lower extremity; nearly complete paralysis of the left arm; partial paralysis of the right upper extremity; anæsthesia of the right side of the body below the third rib; hyperæsthesia of the left lower extremity; great pain and tenderness in cervico-dorsal region, and evident fracture of the first dorsal spine; mental condition apparently normal.

During the first week vomiting occurred at least once in each twenty-four hours, and pain in the frontal and in the upper dorsal region was constant and severe. The bilateral variation of the pulse was distinct till the fifth day. The paresis, hyperæsthesia, and anæsthesia, and the contraction of the left pupil persisted in greater or less degree for several months, and a paresis of the left lower extremity and the anæsthetic and hyperæsthetic conditions and the contracted pupil existed at the time of final discharge from the hospital.

An ophthalmic examination was made by Dr. Callan, and repeated at a later period, with negative result. The eye was retracted and a little less sensitive than the other, but there was no retinal change, and no loss of power in the ocular muscles.

There was no mental disturbance till the occurrence of nocturnal delirium and restlessness at the beginning of the third week. A few days later the nocturnal delirium ceased, but the restlessness at night increased, and delusions of a painful character began to occur, which occasioned the patient much distress. The first trouble which came to him was the fancied death of his wife, and when, a little later, he became convinced that this bereavement was imaginary, he was equally positive that another delusion, the death of his child, was real, and this new conceit possessed his mind for many weeks. He suffered acute mental anguish in each instance, which could have been scarce exceeded had these pure fancies been actual facts. The facial expression grew a little stupid, and an inclination to weep was manifested on ordinary occasions, equally when the amount of cutaneous hyperæsthesia was tested, or when discourse turned upon his family afflictions, but speech was always coherent. At the end of the second month there was some improvement; the facial expression brightened, delusions were less constant and of a more trivial character, and the mental condition was less uniformly clouded. In the third month delusions altogether disappeared, and mental processes, though slow, were no longer distorted; he was enabled for the first time to recall the manner of his injury; vertigo, which had been an early symptom, still persisted.

The temperature on admission was 98·4°, rose during the day to 101·8°, and on the fifth day reached 105°. It was habitually high till late in the second month at some time in each twenty-four hours, not less than 101°+ to 102°+, the diurnal variations being also considerable. The left axillary temperature was markedly higher than the right, usually five tenths of a degree or even more. The pulse was ordinarily from 80 to 90, occasionally 60 to 70, and rarely exceeded 100. The respiration during the first month was not often less than 30 and later ranged from 28 to 24.

The patient left the hospital seven months after admission. There was then no trace remaining of the cerebral injury beyond a little heaviness of manner and a little slowness of thought. The persistence of the spinal lesion was indicated by a stationary paresis of the left lower extremity and by a continuance of the disorders of sensation which immediately followed the traumatism. The left eye was still retracted and insensitive and its pupil small.

CASE XVII.—Male, aged thirty-six years; fell ten feet from a vessel to a raft alongside and then into the water; brief period of unconsciousness, profuse hæmorrhage from left ear, slight epistaxis from left nostril, and hæmatoma in left mastoid region; single general convulsion in the ambulance followed by stertor; consciousness regained at time of admission; both pupils widely dilated; hæmorrhage from the ear recurred during the night; urine retained; temperature, 98·8°. Frontal headache continued for several days, and on the third day there was transient photophobia with contracted pupils. The bladder and rectum were controlled. Dilatation of the pupils was perceptible till the end of the second week and of the right pupil even longer. The prominent symptoms were mental; nocturnal restlessness and delirium, and a rather stupid condition during the day, were succeeded in the second week by continued delirium of a mild type with delusions. In the third week active delirium ceased, though restlessness at night persisted; the facial expression was more intelligent and speech was coherent; there was perfect recollection of the manner in which the injury had been received, and also of a similar accident which had occurred on the same day and aboard the same ship (Case XVI, immediately preceding), but delusions were numerous and constant. At the beginning of the fourth week the patient was restless, excitable, talkative, and had again forgotten the manner and even fact of his injury. Ophthalmic examination was made by Dr. Callan with negative result. At the end of the fourth week delusions finally ceased, and when discharged from the hospital in the eighth week there were no symptoms remaining. The sense of smell was entirely lost.

The maximum temperature was on the fourteenth day, from 101° to 102·2°; the usual temperature was 99°+ till after the fourth week, and then varied from normal to 99°. The axillary temperatures were observed from the fourth to the eighth weeks; the left was habitually, but irregularly, higher than the right. The pulse and respiration presented no notable changes.

CASE XVIII.—Female, aged seventeen years; fell from second-floor window; found in coma with profuse hæmorrhage from left ear and some hæmorrhage from the mouth; left side of face, eye, and parietal region much contused. Two hours later consciousness was partially restored and sensitiveness to external impressions recovered; hæmatemesis occurred, and at a later period, after subsidence of ecchymosis of the lids, subconjunctival hæmorrhage in the left eye was discovered; the right pupil was dilated. Six hours after admission, temperature, 97·4°; pulse, 70; respiration, 38; lack of urinary control. The hæmorrhage from the left ear continued for thirty-six hours, and was followed by a discharge of bloody serum. During the first three or four days the patient was at times noisy and restless and at times quiet. She then became rational and learned for the first time that she had met with an accident and was in a hospital; but she never knew, then or afterward, of her own recollection what had happened to her. At about the same time a protrusion of the left eye became marked, and it was discovered that vision was lost on that side. There were no additional symptoms. The temperature on the second day was 100·2°; pulse, 68; respiration, 18; and temperature afterward varied from 99° to 100°+.

At the end of the fourth week ophthalmic examination was made by Dr. Callan. The right eye was in all respects normal. The left eye was on a slightly anterior plane to that of the right; its movements were unimpaired; there was a slight remaining trace of hæmorrhage near the limbus corneæ; the pupil was moderately dilated and not responsive to direct rays of light, but acting consensually with the right; there was commencing atrophy of the optic nerve and total loss of vision. From the clinical history Dr. Callan was of opinion that a line of fracture had implicated the left optic foramen.

Case XIX.—Male, aged forty years; found in the street in an alcoholic condition; could walk with assistance; profuse hæmorrhage from left ear; slight œdema of scalp in left occipital region; no general symptoms. The recollection of having been brought to the hospital and of previous wanderings, but not of the manner of injury, returned with sobriety. Ecchymosis of both lids of right eye appeared on the following day; vertigo and occipital headache and some pain behind the left ear existed for ten days. Temperature on admission, 98·4°; rose to 101° in the course of eighteen hours, and was afterward 99° to 100°+ during the three weeks the patient remained under observation. The axillary temperatures were usually symmetrical, and when any difference was noted it was higher on the left side. The pulse more frequently exceeded 90 or 100 than is usual in similar cases. The respiration was normal.

Case XX.—Male, aged nine years; fell ten feet from a dump into a scow; consciousness lost for fifteen minutes; no external injury; temperature, 98·2°; pulse, 67; respiration, 28. Third to fifth days, right radial pulse fuller and stronger than the left; somnolence till seventh day, and recurrence on the tenth and eleventh days with a condition of mental indifference; occipital pain continued at intervals during ten days. The temperature five hours after admission was 100·2°, in twelve hours was 101°, and did not exceed that degree; it was 99°+ to 100°+for fourteen days, with an occasional decline to normal for a single observation or for a few hours. The axillary temperatures were observed four times daily, and the left was habitually six tenths of a degree or more higher than the right, and sometimes the difference was as great as a degree and eight tenths; they were occasionally symmetrical, but in sixty-eight observations the right was never the higher. The pulse was usually 52 to 84, and more frequently approximated the lower figure. The respiration was from 18 to 28.

Case XXI.—Male, aged fifty years; fell twelve to fifteen feet from a loft and struck upon the back of his head, six hours previous to admission; unconscious fifteen minutes; contusion of the vertex in the median line; wound in right occipito-mastoid region; hæmorrhage from right ear; delirium from time consciousness was restored, often requiring mechanical restraint; dilated pupils, and right radial pulse fuller and stronger than the left; the urine was retained and the right hand and wrist were paretic. There was marked aphasia—*e. g.*, the patient said "talp that" for stop that, "guth Got" for good God, and "15 Avenue B" when asked his name. The difference in the fullness and strength of the radial pulses continued to be strongly marked at all times till death on the eighteenth day. The dilatation of the pupils, which remained sensitive till the seventeenth day, was also permanent. Delirium persisted, and speech was infrequent and unintelligible till the close of the first week; the mental condition then became brighter and speech distinct and coherent, but delusions were constant and the patient was at no time able to recognize his family or friends. There were subsequent alternations of restlessness and excitability with somnolence or lethargy, but no cessation of delirium, delusions, and more or less incoherent and unintelligible speech, till final unconsciousness, which occurred three days before death. Sensitiveness to external irritations was marked throughout this later stage. The control of urine and fæces was permanently lost during the first few days. The paresis of the right hand was much diminished during the first week. On the sixth day, and on the seventh, there was a short, severe, convulsive attack, followed by a transient high temperature. These were succeeded on the morning of the eleventh day by a general convulsion, which was at first confined to the upper extremities, and continued twenty minutes; the right arm was less rigid than the left. Another attack in the afternoon of the same day, of twenty-five minutes' duration, began with a twitching of the facial muscles, and was extended to the trunk; all the extremities remained rigid; the face was of a natural color, though subsequently much flushed, but the hands were blue. The morning convulsion was followed by prolonged unconsciousness, that of the afternoon by an apparently natural sleep after a short interval in which the mind was unusually clear and alert. There was another very brief general convulsion five days later. Posterior cervical muscular rigidity existed from the ninth to the fourteenth days. The temperature on admission was 101·8°, and varied from 100°+ to 101°+ till the fourth day, when, without other change in symptoms, it rose to 104°; and in the twelve hours following declined to 101°+, and was continuous at about that degree till the tenth day, except at the time of the first and second convulsive attacks, when it rose for a short time to 106° and 106·6°; on the morning of the tenth day it rose to 105°, again declined to 101°, and with the occurrence of the third and fourth paroxysms on the eleventh day it rose to 105·4°; on the twelfth day it declined for a brief interval to normal, and was subsequently uniformly high, from 103° to 106°, and at death was 108°. In fifty-two observations the right axillary temperature was higher than the left in thirty-two, the left higher than the right in seven, and in thirteen the two were uniform; the variation was from two tenths of a degree to a degree and eight tenths. The pulse on admission was 112, and then, for the first ten days, 65 to 100; never afterward below 120. The respiration on admission was 36, and after the first four days rarely below 32.

Case XXII.—Male, aged forty-two years; fell in the street, striking the back of his head; consciousness lost, but regained on the way to the hospital; mental condition stupid, but rational, becoming normal in a few hours; slight general headache; later, frontal pain, followed same day by a single general convulsion of five minutes' duration; head and eyes turned to the right; left side and extremities actively convulsed; right arm and leg motionless. On the third day there was transient posterior cervical rigidity, and on the third and fourth days the left radial pulse was fuller and stronger than the right. During the first ten days the patient's condition was marked by stupor, occasional somnolence, slowness or refusal to answer when questioned, nocturnal delirium becoming continuous, frontal pains, and contracted pupils. In the week following there were delusions, lack of fæcal and urinary control, increased somnolence and stupor, some muttering delirium, and pains in the back of the head and left extremities, succeeded by left paresis. After this time the patient occasionally indicated more intelligence when roused from his habitual stupor, and once conversed intelligently with his wife. The pupils remained contracted and insensitive to light, the urine and fæces uncontrolled, the limbs drawn upward, and any disturbance of the left side of the body was resented. On the twenty-fifth, the last day of life, articulation was indistinct, deglutition difficult and death, preceded by restlessness and some brightening of the mental condition. The temperature on admission was 98°, rose to 103·2° on the third day, and was subsequently 99° to 100°+ till the last day, when it was 107·2°. The pulse on admission was 80, on the fifth day 42 to 58, and at other times 68 to 100. The respiration varied from 18 to 24. A few hours before death both pulse and respiration became frequent.

Case XXIII.—Male, aged thirty-eight years, admitted in an alcoholic condition without a history; profuse hæmorrhage from the left ear. The patient never afterward remembered having been hurt. During the first week hearing was greatly impaired in both ears, and there was much mental confusion, with sensory aphasia and general loss of memory. General headache was severe and vertigo marked. The patient was enabled to recollect with great difficulty the place of his employment, and could only suggest his occupation as a waiter by using an imaginary corkscrew in dumb show. The right radial pulse on the second day was fuller and stronger than the left. In the second week hearing was quite restored in the right ear and was nearly recovered in the left. The mental condition became normal, and there were no further symptoms. The temperature on admission was 99·2°, and did not subsequently exceed 100°+. The left axillary temperature was two tenths of a degree higher than the right when there was a lack of symmetry. The pulse on admission was 80, and was only once above 100. The respiration was from 18 to 24.

Case XXIV.—Male, aged forty years; fell six feet into an area way; consciousness lost, and not restored at time of admission, but sensitiveness to external impressions retained; profuse hæmorrhage from right ear; left radial pulse fuller and stronger than the right; pupils contracted, but responsive to light; right corneal reflex diminished; right side and right face paretic, and urine retained. The pupils became normal on the second day, and the radial pulses symmetrical on the third, with some signs of returning consciousness. Convulsive movements of the extremities occurred on the fourth day, and there was some dysphagia. The patient gave little evidence of intelligence till the end of the fourth week; he had no power of speech beyond the utterance of an occasional single word, and when his attention could be attracted, which was not often, replied only in inarticulate sounds; he rarely recognized his immediate family, and had no apparent comprehension of what was said to him. The right facial paralysis continued, with added ptosis of the left eye, and both pupils became dilated. His mind then became clearer, but intelligence was very limited; he articulated several words with moderate distinctness, and a little later used several short phrases with propriety; a little later still his attention could be momentarily fixed to comprehend and answer monosyllabically a simple question. An ophthalmic examination made by Dr. Callan disclosed no retinal changes. At the end of the sixth week he began to notice what went on about him, recognized his mother, and developed destructive tendencies. Early in the seventh week he first gave attention to the natural offices of the body, and his increasing range of words accentuated his aphasia. After the second month there was only a trace of facial paralysis, and no other paretic condition. He could dress himself, and went about the ward; he could remember, and could write, his name and address correctly, and seemed to readily understand such questions as were asked him, but replied in an endless tirade which was incoherent and largely made up of inarticulate sounds interspersed with recognizable words, and apparently as devoid of meaning to himself as to the listener. He was unable to write from dictation more than a few words before the written characters became incomprehensible, and he repeated words. He had no knowledge of his occupation, manner of injury, or local surroundings. He was discharged at the end of the third month, and had then upon cursory examination no symptoms of mental disorder remaining, except some hesitancy in collating words, and in long sentences a little confusion in expression. If an attempt was made, however, to engage him in a sustained conversation, his thoughts became more and more entangled; he talked rapidly and excitedly, and his words were inextricably jumbled together. On examination, four months later, his mental condition was that of dementia.

The temperature on admission was 98·4°, and reached its maximum, 102·6°, on the second and third days. It then gradually but irregularly declined. It was occasionally normal after the first week, but ordinarily 99°+ or 100°, quite up to the time of the patient's discharge from the hospital. The right axillary temperature was the higher twenty-two times, and the left twelve times, and the two were uniform once, in thirty-five observations made during the first nine weeks. The left was afterward usually two tenths to four tenths of a degree the higher. The pulse did not exceed 90 after the fourth day, and the respiration was at no time more than 22.

Case XXV.—Male, aged forty years; fell two stories from a fire escape to the pavement below; was conscious and delirious when seen by the ambulance surgeon. There was a small linear wound in the left antero-inferior parietal region, hæmorrhage from mouth and nose, and lack of urinary control. Mild delirium and great restlessness continued for twenty-four hours, and the right side and extremities were noted to be warmer and in more active motion than the left. On the second day there was post-cervical rigidity, and the patient became more difficult to rouse. On the third day both pupils were somewhat dilated, the face was flushed, and he lay motionless, with eyes closed, irresponsive to questions or to irritations. On the fourth day post-cervical rigidity disappeared. On the sixth day urinary and fæcal control was regained. On the seventh day the patient, fully aroused from his condition of stupor, became restless, and was delirious through the night, but not afterward. From this time he suffered only from mental disorder. He had confusion of ideas and failed to recollect any of the circumstances which preceded his injury, or in fact that he had received a hurt. He had no appreciation of his surroundings, and gave fanciful explanations of his presence in a hospital when interrogated. His mind was alert and his speech coherent. During the second month he suffered an attack of facial erysipelas upon the side opposite the original wound, and was actively delirious. His mental processes were afterward slow, and when questioned he remained long buried in thought before making answer, which when made, though hesitating, was fairly intelligent. He had come to realize that he was in a hospital, but was still ignorant how he happened to be there; "supposed" he had been hurt. The temperature on admission was 97·4°, rose during the day to 102·2°, and was afterward usually from 99°+ to 100°+. The right axillary temperature was two tenths of a degree to a degree higher than the left during the first week, and the left the slightly higher of the two after that time. The pulse and respiration were practically normal at all times.

Case XXVI.—Female, aged twenty-eight years; gunshot wound through right temporal region inflicted during a paroxysm of suicidal mania; ball of thirty-two caliber; primary unconsciousness. On admission three hours later no general symptoms; wound of entrance, half an inch posterior to right external angular process, Y-shaped, three quarters of an inch in length in each of its arms; surface powder-stained, some grains of powder imbedded in the substance of the temporal muscle, but none in the skin; profuse hæmorrhage had occurred from the wound and still continued from the mouth and nose; bullet entrance through the bone small and circular and covered by a valve of muscular tissue. On examination the patient was fully conscious, rational, and self-possessed. The right eye was swollen, the lids ecchymotic, and vision on that side entirely lost. The ball had passed from the temporal fossa beneath the lesser wing of the sphenoid and through the floor of the middle fossa at the margin of the sphenoid body. The track was easily followed through the anterior cerebral lobe, and the bony margin of exit could be defined by slightly opening the blades of the short bullet forceps which had been inserted. A small portion of brain matter, not larger than a pea, escaped from the external wound. On the following day she was rather stupid, and another trivial amount of brain matter was extruded. On the third day the left eyelids became moderately ecchymotic and the right side of the face and neck much swollen and painful. There were convulsive movements of the hands and feet, and a loss of smell in the right nostril was confirmed by careful examination. On the fourth day she was quiet and somnolent and had some headache. The left side of the mouth was drawn a little upward and tenderness existed behind the left ear. On the fifth day somnolence and headache ceased, pain and swelling of the right side of the face and neck diminished, and the mental condition became brighter. On the tenth day she was restless and began to suffer pain on the right side of the head, which, on the succeeding day, was intense. The eye became more vascular, swollen, and prominent, and on the fourteenth day was extirpated under ether. At the end of a month the bullet wound of entrance had become simply cutaneous and was in process of cicatrization. The swelling of the right side of the face and neck and the tenderness behind the left ear had ceased to exist. The pain on the right side of the head, which persisted in some degree, was no longer constant or the source of any considerable discomfort. There had been no indication of any form of mental impairment at any time since the slight hebetude on the second and third days after the reception of injury, and no loss of fæcal and urinary control.

The temperature on admission was 100°; rose to 102·4° in twelve hours, and declined to 99·8° on the second day, and then varied from 101°+ to 99°+ till the twelfth day; it did not exceed 100° after the fifteenth day and was subsequently from 99° to 100°. The right axillary temperature was habitually two tenths of a degree higher than the left. The pulse was from 72 to 80 till the third day, from 68 to 52 till the twelfth day, and subsequently from 70 to 78. The respiration was 28 on admission and afterward normal—16 to 22.

In the sixth week the wound had healed and there were no symptoms. At the end of three months her mental and physical condition is normal, in her own opinion better than before the injury was received.

SUMMARY.

The differential diagnosis of the intracranial lesions has been incidentally established in the consideration of their individual symptoms. There are few instances in which the nature of the essential lesion and of its complications can not be determined with substantial certainty, and in a considerable proportion of cases its location even can be fixed with some approach to precision. The fact that an interval of time may be required for the evolution of symptoms is paralleled in the case of idiopathic diseases affecting the great cavities of the body; it can scarcely be considered a special diagnostic difficulty, therefore, in the present class of traumatisms. In lesions of the parenchyma the delay is unimportant; in hæmorrhages of the form in which promptitude in diagnosis is demanded by the necessity for promptitude in action, the development of the case is likely to be correspondingly rapid and decisive.

The existence of superficial injuries of the head, the evidences of fracture, and the elevation of temperature, individually or collectively, together with the usual processes of diagnostic exclusion, will be sufficient to determine the fact that some encephalic injury has been suffered. The further determination of the special lesion which dominates the case presents difficulties which, while not insuperable, are often considerable. It is perhaps useless to attempt a more condensed summary of points in differential diagnosis. I have already incidentally stated them as succinctly as seemed compatible with their proper presentation; but it may be of service to recall, or to reiterate, some of the more important diagnostic indications which the study of symptoms has suggested.

Hæmorrhages.—The morbid conditions which may directly result from traumatic intracranial hæmorrhages are: an abnormal temperature, a complete or partial loss of consciousness, a change in the character or frequency of the pulse or respiration, a disturbance or abrogation of muscular function, and an irregularity of the pupils. These conditions are subject to complication, modification, or supersedure by the symptoms of coexistent lesions.

A continued subnormal temperature is characteristic of large and comparatively uncomplicated hæmorrhages, and as these are more frequently of epidural character, it may be regarded as to a certain extent diagnostic of the variety as well as of the class. The absence of symptoms indicative of parenchymatous injury will be confirmatory of the opinion that an existent hæmorrhage is derived from the epidural vessels. Associated symptoms of diffused contusion suggest a pial, and those of laceration a cortical, hæmorrhage. In the majority of cases the primary record of temperature is from 99° to 99°+, and in any case in which, then or afterward, it exceeds 101°+, or probably 100°, the elevation is due to an associated lesion. It follows that in pial or cortical hæmorrhages the temperature has a higher range than in those of epidural origin, and is proportionate to the extent and importance of the complication. The bilateral variation to which the axillary temperatures are subject is not peculiar to this result of injury.

The primary unconsciousness which is of frequent occurrence in cases of hæmorrhage is a symptom of complicating general contusion; the secondary unconsciousness, due to the loss as well as pressure of blood effused, follows with or without an interval of restored consciousness, dependent upon the severity of the diffused injury of the parenchyma and the rapidity of the hæmorrhagic effusion, and is partial or complete in proportion to its amount. Consciousness is always lost in fatal cases; it is retained in fifty per cent. and more in recovering cases, even in those demanding operation.

The character and frequency of the pulse have no definite relation to the form, location, or amount of hæmorrhage. The pulse may be normal, slow, or frequent in large extravasations wherever situated; but frequency is of so much more usual occurrence in hæmorrhage than in other intracranial lesions that when noted it may be considered fairly diagnostic, with the numerical probabilities in favor of its epidural character. The bilateral variation in the force and fullness of the arterial pulsations is common to hæmorrhages and to injuries of the brain substance, and of importance, therefore, only in general diagnosis.

An alteration in the character or frequency of respiration is almost invariable in fatal cases in which hæmorrhage is an approximately isolated lesion. When the effusion is upon the convex surface of the brain, respiration is usually frequent and often stertorous; when at the base posteriorly, it may be frequent with cyanosis, or, if pressure is made upon the medulla, it becomes progressively slower until it ceases altogether, though cardiac and arterial pulsation may still continue. In recovering cases it is habitually unchanged. In complicated or mixed cases it, like the pulse, perhaps as a resultant of opposing forces, very generally remains normal; and if abnormal it is more likely to be stertorous than unduly slow or frequent.

General or local paralysis and disordered muscular action may be direct symptoms of hæmorrhage compressing or irritating recognized centers of muscular control; tetanic spasm is not infrequent, but clonic contractions are of rare occurrence, except as the result of an associated lesion.

The pupillary condition usually suffers some change, but none which is characteristic. Every possible combination of contraction, dilatation, and normal condition, with the single exception that contraction of one pupil never occurs without some change in its fellow, is associated with every variety and situation of hæmorrhage. Dilatation in some combination is more commonly observed than contraction, but not more frequently upon the side of the effusion than upon the opposite; and not more characteristically with one type of hæmorrhage than with another. In complicated hæmorrhages dilatation of both pupils is more common, and the effusion is more frequently bilateral than in the more nearly simple cases; and in unilateral dilatation is more likely to be on the corresponding side. A normal condition of the pupils is compatible with every variety of hæmorrhage wherever situated, whether simple or complicated.

Sensory disturbances, as delirium or irritability, are not symptoms of hæmorrhage, and when they occur are to be regarded as indicative of an accompanying lesion of the parenchyma.

Subarachnoid Serous Transudation.—The serous transudation from the pial vessels which occasionally results from meningeal contusion can not be connected with symptomatic conditions.

Arachnitis is either acute or subacute in form, and is typically caused by a diffused meningeal contusion, though exceptionally propagated from a point of localized injury. It is sometimes an immediate result of the meningeal lesion, and it may be insidious in its inception and progress, but its beginning is usually late and is sharply defined. Its invasion is likely to be marked by a distinct and rather sudden elevation of temperature and an evident change in the general condition of the patient. The subsequent course of temperature is erratic, and the characteristic symptoms are those of cortical irritation. The pupils are oftener normal than otherwise, and changes in the characters of the pulse and respiration are slight. The form of the effusion is not necessarily reflected in the course and nature of the symptoms. The question of infection is uncertain.

General contusion is a constant complication of all other forms of intracranial injury, but rarely occurs as an isolated lesion of fatal severity. Its symptoms are irregular in their development, course, and termination, and indefinite in their mutual relation. This lack of conformity to any classical rule is due to the comprehensiveness of the lesion, its regional variations, and the fluctuations which occur from time to time in the distribution of the movable fluids upon which its manifestations mainly depend. A loss of consciousness, at some time and in some degree, is more nearly constant than any other individual symptom, and the conditions of temperature are more uniform than any of the other phenomena which it occasions. The temperature is not likely to be subnormal at the time of earliest observation, nor to exceed 99° + ; its subsequent course in cases of intensity is progressive, with few recessions, and ultimately reaches elevations of high degree.

Primary or early delirium, like primary unconsciousness, in both simple and complicated cases, is to be ascribed solely to the influence of this lesion. The diagnosis must largely depend upon the recognition of the fact of intracranial injury, and upon the further possibility of excluding its other varieties, or, if they exist, of segregating the effects which they produce from a distinct remainder of symptoms.

Limited contusion is comparatively infrequent, and when it occurs in scattered areas through the centrum ovale, is not distinguishable from the general form of the same lesion; when it is cortical, it differs from laceration only in the extent of injury done to tissue; and symptoms, if they result, differ only in degree. It is therefore practically impossible to diagnosticate it from those lesions in their mitigated form.

Laceration is almost, if not quite, invariably complicated by a concomitant general contusion and by a resultant hæmorrhage. The primary loss of consciousness, and the delirium of some grade or character which often precedes or follows its restoration, are attributable to the attendant general contusion. In trivial cases there may be no secondary symptoms which indicate the fact of laceration. The primary unconsciousness may be replaced by a condition of lethargy or blunted perception, passing through somnolence into coma and death. The primary stage is most frequently succeeded by mental aberration or decadence, which may terminate in recovery, permanent dementia, or death. In exceptional instances consciousness may remain unimpaired, with extensive laceration of even fatal import. There is no necessary relation between the gravity or simplicity of the early psychic symptoms and the outcome of the case.

The temperature is higher than in any other form of intracranial injury, and, in cases destined to an early fatal termination, is characterized by a rapid and progressive increase, which sometimes continues for a certain time after death has occurred.

An irritability or abnormal sensitiveness to external impressions, often noticeable even after the supervention of final unconsciousness, and wanting in cases of hæmorrhage or contusion, is of frequent occurrence.

Convulsions, especially in implications of the frontal or temporo-sphenoidal lobes, are frequent in fatal cases, and so infrequent in the history of other lesions that they may be regarded as characteristic. The presumption that they are occasioned by laceration rather than by hæmorrhage is strengthened by a previous high temperature.

The loss of fæcal and urinary control is common to all extensive lacerations without reference to the abrogation of consciousness or of muscular power. It rarely follows other forms of intracranial injury and is very nearly pathognomonic. The urinary and fæcal discharges may be either unconscious or involuntary, or they may be the result of the patient's indifference to his surroundings. There are no demonstrated centers of control.

Paralyses are so much oftener the result of other lesions that they are of service only in determining the location of a laceration the existence of which has been already predicated upon more positive manifestations.

The pupillary changes have no greater diagnostic value than in hæmorrhages; the pupils are, in fact, normal in a much larger proportion of cases.

The characters of the pulse and respiration are habitually unchanged unless modified by the existence of complications. The contrast afforded by their substantially normal condition in an environment of pathic phenomena gives them the highest diagnostic value which they possess in this particular relation.

The bilateral variation in axillary temperatures and in the force and fullness of arterial pulsation, already noted as of unknown origin and referred to general diagnosis, is common to all forms of intracranial injury.

The manifestations of psychic disturbance are confined to cases in which the frontal lobes are implicated, but this implication is so constant as to make them practically symptoms of laceration in general. The other special symptoms which localize the seat of laceration have been already summarized.

The phenomena as indicated which directly point to laceration may be enumerated as certain peculiarities of temperature, psychic disturbances, loss of fæcal and urinary control, and clonic convulsions.

Pyogenic parenchymatous inflammation is infrequent, and is of limited form, except when caused by the intrusion of a foreign body. Direct laceration and infection through the medium of compound fracture affords no question of diagnosis and is excluded from consideration.

The predisposing cause of traumatic central abscess is limited contusion; the exciting cause is supposed to be the admission of a pyogenic germ from some source external to the body. Though this supposition as to the source of infection may be correct, the further proposition that a route of entrance is always afforded by a superficial wound of the head is erroneous. Cases have occurred and are recorded in which no such wound existed.

The number of instances in which the histories of these limited pyogenic processes have been carefully observed or recorded is insufficient for the formulation of rules for diagnosis. The two cases which I have presented, and a third which I have noted, are in evidence of their uncertain symptomatology.

These conclusions are derived solely from the analysis of the cases which I have detailed, and are stated in as positive terms as the limited number of observations made will warrant. The series of cases presented, if insufficient to afford a basis for statistical inference, is yet so extended that the generalizations which it justifies are entitled to credence until controverted by results obtained from the study of a very much larger number of cases subjected to equally careful examination. It may be questioned whether deductions made, as in this instance, from the comparison of some hundreds of cases are likely to be materially changed by any subsequent multiplication of their number.

Symptoms are so diversified, their combinations so varied, and their continuance is sometimes so brief, that constantly careful observation and equally careful record are essential to thorough comprehension of intracranial injuries. If there are few symptoms which are intrinsically pathognomonic there are many which by mutual relations of time and circumstance assume a pathognomonic character.

The possible multiplicity of lesions must be recognized, the relative as well as the absolute value of symptoms estimated, and if necessary some interval of time afforded for the development of the pathic condition; diagnosis becomes then neither more difficult nor more uncertain than in a majority of grave traumatic or idiopathic lesions.

34 West Thirty-seventh Street.

Changes of Address.—Dr. Albert S. Ashmead, to No. 5 Charlton Street, New York; Dr. Melvin H. Fuller, to No. 117 East Jefferson Street, Syracuse, N. Y.; Dr. R. K. Macalester, to No. 23 West Fifty-third Street, New York.

The Brooklyn Health Department.—Dr. Z. Taylor Emery, health commissioner of Brooklyn, has appointed Mr. William Paul Gerhard, C. E., to the position of honorary consulting sanitary engineer.

A State Examination in Georgia.—We learn that the new law providing for a State board of medical examiners (really, three boards—regular, homœopathic, and eclectic) went into effect on January 1st.

The Association of Alumni of the New York Hospital will hold its annual meeting at the Hotel Marlborough on Friday evening, the 25th inst., at 8.30 o'clock.

THE USE OF MEDULLARY GLYCERIDE IN CONDITIONS ATTENDED BY PAUCITY OF THE RED CORPUSCLES AND HÆMOGLOBIN.

By ALLAN McLANE HAMILTON, M. D.

Without making an extended allusion to the organs concerned in the process of corpuscle formation, or repeating what has so often been said before, it may be proper to call attention to the more recent recognition of the importance of the relation of this function to changes in the central contents of the bones. The pathology of the various depraved blood states attended by diminution of red, and commonly increase of white, corpuscles; alteration in form of the former or of the existing proportions of the two kinds of corpuscles; the development of the so-called eosinophile granules; or diminution of cellular contents, has been a matter of some dispute, and clinical states have been ascribed to pathological alterations of the spleen, lymph glands, and medullary contents of bones. Osler's [*] table classifying primary cytogenic anæmias has undergone little modification since 1885, when he insisted upon the importance of the medullary changes; in fact, his views have been strengthened by the case reported by Wallace Beatty.

The results of the use of bone marrow by Frazer [†] and others have induced the writer to experiment with this agent during the past few months, and he too has been impressed with its efficacy in certain conditions dependent upon a depraved condition of the blood.

The conclusions reached by the several investigators are not only those which are based upon the general appearance of the patient, but are easily demonstrated by proper and exact tests made with instruments invented by several clinicians and fully described by von Jaksch, [‡] so that there can be no doubt of the efficacy of the agent. Extreme care, of course, is necessary in taking the measurements which form the basis of a proper estimate of the extent of cytogenesis which occurs, for all instruments of precision that have so far been devised for measuring the corpuscles and hæmoglobin, although approximately correct, very easily exaggerate one way or the other, so that it is necessary to make repeated examinations and take averages, a proceeding at which the patient often rebels, especially if he is nervous.

The cases selected for treatment with bone marrow presented varying forms of red-corpuscle poverty (oligocythæmia) and diminution of hæmoglobin (oligochromæmia), most of which were obstinate and had resisted arsenic, iron, manganese, and other hæmiants, and in every instance preliminary examinations of a definite kind were made, the red corpuscles being counted by the Thoma-Zeiss apparatus, and the hæmoglobin estimated by the instruments of Fleischl, Gowers, and Henocque. No count was made of the white corpuscles.

The micrometric counts made before, during, and after treatment convinced me that a great prolification of red corpuscles was possible, the number greatly exceeding the fixed normal standard in some instances, and the daily increase being much more extensive than had been admitted by those observers who have detected a maximum increase of 20,000 or 30,000 *per diem* after excessive hæmorrhage.[*] In two cases the ordinary limit [†] was passed by a million or more, a result which appeared incredible at first, but was proved in a variety of ways, every precaution against error being taken. In this connection Dr. W. Gilman Thompson has recently told me of an experience which has convinced him that both corpuscles and hæmoglobin may exist in very much greater quantities than has been supposed to be possible. In two or three cases poikilocytosis, or irregularity in the shape of the corpuscles, was present.

It is, I think, reasonable to ascribe this rapid and extraordinary increase to the direct influence of the medullary extract; and the immediate improvement in the state of the blood and subsidence of symptoms, which certainly go together, are no less wonderful than the improvement that follows the use of thyreoidal extract in myxœdema, though the gain is more permanent than in the latter.

Dr. J. S. Billings, Jr., [‡] whose conclusions are exceedingly conservative, has employed bone marrow extract in four cases, two of pernicious anæmia and two of chlorosis, his results (unlike those of Frazer) in the former disease being unsatisfactory, while he ascribes the benefits following its use in the other cases to the contained iron—a conclusion which does not seem to be borne out in those cases where red corpuscles are multiplied without any corresponding increase in the hæmoglobin.

I made use of two forms of marrow—viz., that obtained from the long bones, which was given raw, as recommended by Bigger; [‖] and a glyceride of the short ribs, such as has been advised by Danforth,[#] only the phosphate of sodium and arsenic, which were used by him, and all other substances were omitted.

The writer's preparation, which was made by Frazer & Co. and by Bagoe, of this city, requires that a pound and a half of finely comminuted calves' ribs should be macerated in a quart of pure glycerin, the mass being allowed to stand for several days and frequently stirred. The glycerin is then strained through cheese cloth and given in doses of from one to four teaspoonfuls three times daily, with a few drops of peppermint essence.

I am informed that another preparation has been made which consists of the emulsification of the marrow by Iceland moss, with a certain amount of boric acid, which is added as a preservative; but the latter is sometimes likely to produce idiosyncratic disorders, so I have confined my patients to the use of the glyceride, which does not undergo any alteration and seems to be as palatable.

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[*] *Pepper's System*, vol. iii, p. 892.

[†] *British Medical Journal*, June 2, 1894.

[‡] *Clinical Diagnosis*, English translation, pp. 6 *et seq.*

[*] Osler. *Pepper's System*, vol. iii, p. 885.

[†] Vierordt (Von Jaksch, p. 7) estimates the average number of red corpuscles in a cubic millimetre at 5,000,000 in health in man and 4,500,000 in woman, with a maximum limit of 350,000 in disease.

Osler, Foster, and others also fix the average at 5,000,000, and the former says that the variations of percentage within health are 90–110.

In a case of plethora Henry reports a maximum of 5,525,000.

[‡] *Johns Hopkins Hospital Bulletin*, November, 1894.

[#] A Case of Leucocythæmia apparently cured by Bone Marrow. W. G. Bigger, M. D., M. R. C. S. *Lancet*, September 22, 1894, p. 682.

[‖] *Chicago Clinical Review*, vol. iv, 1894.—Editorial in *Medical Record*, October 27, 1894.

Considerable discussion as to the merits of the marrow from the different bones of the animal has arisen. I would say that my best results have been obtained from the red marrow contained in the small bones, notably the ribs of the young animal. The coarse marrow from the long bones contains a great deal of fat, and, while this is, of course, a beneficial nutrient, it would seem that the specific virtues of the agent exist in greater degree in the finer medullary substance.

The glycerides were administered alone and together in cases where no other remedy was given, and the good effects were, as a rule, apparent within a few days, and lasted after the discontinuance of the treatment. In but one case were they not apparent.

Case I.—Male, aged thirty-six years; ironworker; much debilitated; gradual loss of strength and color for the past six months. The patient has followed his trade in a dimly lighted and badly ventilated cellar; has had malarial fever. Is now, October 18, 1894, very weak; shortness of breath upon least exertion; pulse small and quick; has attacks of tachycardia; no heart murmurs or other evidences of structural cardiac disease; sphygmographic tracing almost without elevations; anxious and melancholic; passes large quantities of clear urine of low specific gravity. His appearance is one of exsanguination, and he does not bleed readily. There is a yellowish tinge suggesting icterus, yet no hepatic trouble; spleen somewhat larger than it should be. Hæmocytometer gave an average of only 1,000,000 red corpuscles, which were irregular and presented the appearance of poikilocytosis. The white corpuscles seemed to be unusually abundant. Hæmoglobin by Henocque, 8·70. Iron, arsenic, and cod-liver oil had done little or no good.

On November 1st placed on medullary glyceride.

19th.—Great improvement in strength and appearance; able to work, dyspnœa absent, and walks up stairs without discomfort; pulse greatly increased in volume; in good spirits, and blood-corpuscles average (12 * to sq.) 4,800,000; hæmoglobin, 10.

25th.—Has gained nine pounds since the first of the month; general improvement in every way, chiefly in appearance; though still pale, "has not felt so well for months." Six countings average (15 to sq.) 6,000,000.

December 31st.—Has continued to do well.

This case is probably one of oligochromæmia as well as oligocythæmia, for there has not been the corresponding increase in the amount of hæmoglobin, von Fleischl's and Henocque's instruments showing an increase of only 10·50 grammes, which is, of course, out of proportion to the exaggerated increase in the number of red corpuscles.

Case II.—Young woman, aged nineteen years; first seen September 12, 1894; hysterical, anæmic; constant *besoin de respirer.* Very pale, bleeding gums, slowness of digestion, and flatulence due to atony of stomach and decomposition of food; constipation; small, quick pulse; menstruation has been irregular, and blood thin and of light color and very alkaline. Post-cervical pain, insomnia, and day drowsiness; depressed, and manifest light delusions of a hypochondriacal, erotic, and religious nature; has formed a morbid attachment for a female nurse. Could never take iron. Rest and forced feeding did little or no good.

October 1st.—Put on medullary glyceride. Examination showed average of 1,250,000 red corpuscles; blood when drawn had little consistence, flowed too readily, and was of light color. Figures upon Henocque's slide could be read up to nine.

Medullary glyceride given for five weeks gave an increase to over 5,000,000, with thirteen grammes of hæmoglobin, and general and steady amelioration of symptoms, which has continued to date (December 11th).

Case III.—Woman, aged thirty-eight years; exophthalmic goître; has been under writer's observation for several years, and is a well-marked case. Has at different times suffered from depression, great anæmia, tachycardia, loss of hair, bronzing, furfuraceous eruptions, great debility, menorrhagia, respiratory embarrassment, and enlarged thyreoid, which latter was somewhat reduced by strophanthus, iron, and hydriodic acid; but great exhaustion, anæmia, dyspnœa, feeble digestion, and occasional diarrhœa exist.

Medullary glyceride given November 1, 1894; corpuscles average 2,800,000; hæmoglobin, nine grammes.

December 11th.—Material improvement in all symptoms; patient has gained six pounds; pulse, 80; face slightly flushed; can come to office from home, twenty miles in country, and return same day without fatigue and no resulting headache. Increase in corpuscular richness to 5,325,000, and the hæmoglobin increasing to 12·20 grammes.

Case IV.—Woman, aged forty years; for several years has been hysterical, anæmic, and incapable of taking exertion without resulting back and headache. A year ago oophorectomy was performed by Dr. Lusk, who referred her to me, her nervous state and general malnutrition persisting. A variety of cerebro-spinal neurasthenic disturbances were helped little or not at all by treatment, and it seemed impossible to improve the condition of anæmia. Corpuscular poverty well marked, the red corpuscles not exceeding 2,500,000 at any time. November 3d, placed on medullary glyceride with prompt benefit. In doses of two drachms, thrice daily, she gained over two million corpuscles in six weeks, and her hæmoglobin rose to nearly fourteen grammes.

The medullary glyceride was given in fourteen other cases, most of which were without special features, so I will not report them. Suffice it to say that the results were as encouraging as in those reported above.

In cases in which anæmic headaches were the prominent feature the effects of the marrow were marked, and many such improved in a few weeks. Two brominized epileptics were decidedly benefited, and this treatment must commend itself when iron in such cases is apt to produce cerebral congestion and an increase of the fits.

Medullary glyceride was also given to a patient with pulmonary tuberculosis who had been exhausted by severe

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* Average count of sixteen of the two hundred one-hundredths of a millimetre square of Thoma's micrometer cell.

Reduced computation for Thoma-Zeiss instrument:

11	corpuscles	in sq.	represent	4,400,000	in a cubic millimetre.
12	"	"	"	4,800,000	" " "
13	"	"	"	5,200,000	" " "
14	"	"	"	5,600,000	" " "
15	"	"	"	6,000,000	" " "
16	"	"	"	6,400,000	" " "
17	"	"	"	6,800,000	" " "

hæmorrhages, with remarkable resulting benefit, the restoration from prostration being rapid and the ordinary symptoms of the disease improving.

SOME OF THE AFTER EFFECTS OF ANTITOXINE.

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At the present time, when not only the medical profession but the general public are deeply interested in the new treatment of diphtheria, it behooves all of us who have had experience in its use to make known to the profession any unusual symptoms which have occurred in our practice after the administration of antitoxine. In looking over some of the reports of observers and experimenters abroad, I notice that urticaria is mentioned as frequently happening during convalescence, a few days after the injection has been made. Sometimes it is ill-defined and sometimes well marked. There is little or no fever accompanying it, although, as is usual in all cases of this nature, there is a slight rise of temperature *before* the appearance of the eruption. This urticaria is undoubtedly caused by the serum; not necessarily from any poisonous effects of it, but probably, in some cases at least, from an idiosyncrasy on the part of the recipient. It is well known that some people can not take shellfish without suffering from nettle rash; others can not take raspberries in any form without the same result. I am given to understand that the serum of *certain* horses is apt to cause this in certain individuals; therefore makers of the antitoxine are careful to eliminate from their stock any horses whose serum is supposed to have caused an attack of urticaria.

The old saying, "What is one man's meat is another man's poison," may be true in regard to serum as well as in regard to food. The amount of injection does not seem to influence those after effects, as I shall be able to show in the cases I am about to mention. The first case I will bring before the readers of the *Journal* is that of A. B., aged between thirty and forty years.

I was called to see him on the 4th of December. On examination of his throat I found a patch of membrane on each tonsil. A culture was taken from the throat which was found to contain numerous bacilli of diphtheria. For some days previous to the above date he had complained of a sore throat, cough, and feverishness. In the afternoon I injected fifteen cubic centimetres of antitoxine procured from the New York Biological Institute. Sixteen hours after the injection the patches had disappeared, but there was still a deep red, almost purple, hue all over the pharynx. A culture was again taken which showed no signs of the bacilli of diphtheria. I injected ten cubic centimetres of the serum. On the following day, the 6th, the throat seemed quite healthy and the patient said he felt quite well. On the 7th his cough was worse and he did not feel so well. On the 8th the condition was much the same. In the afternoon of the 9th he felt decidedly miserable. His temperature was 99·2°. During the early morning of the 10th his whole body was covered with the large, well-known blotches of urticaria, and round the parts where the antitoxine was injected the surface was of a purplish color, to the three inches by an inch and a half. The itching was excessive. During the afternoon the rash suddenly disappeared, but not the redness around punctures. He now became nauseated and had no appetite. I ordered quinine, sulphate of magnesium, and infusion of gentian to be taken every three hours. On the 11th the temperature was 98·4°. The rash had again appeared and the itching was intolerable. This condition continued all day. Toward evening the redness around the puncture began to disappear. To relieve the itching I ordered a lotion containing menthol, alcohol, and water to be applied, also a sixth of a grain of pilocarpine every two hours till free perspiration took place. At 11.30 p. m. the itching was much relieved, but instead of perspiration there was salivation to a great extent; in fact, the quantity of saliva almost choked him. Only one dose of a sixth of a grain of pilocarpine had been given. I stopped this medicine and ordered an alum wash, which arrested the salivation. At 7 a. m. of the 12th, when I saw him, the nausea and itching had entirely left, but he had intense pain in the muscles of his legs, back, and shoulders, with tenderness over left side of abdomen. I ordered five grains of phenacetine to be taken every hour for four hours. In the evening he was to a certain extent relieved, but the pain in the left leg and left shoulder was still very bad.

13th, 9.30 A. M.—He had had very little sleep on account of the pain, which had increased up to 3 a. m. I ordered five grains of salicylate of sodium every two hours as a sudorific, as the skin was uncomfortably dry. At 5 p. m. there was still no moisture on the surface of the body and the pain was excruciating, more especially in the left shoulder. I continued the salicylate of sodium and also had turpentine stupes applied to the painful part and gave twenty grains of sulphonal at 10 p. m.

14th, 10 A. M.—The sulphonal procured only an hour's sleep, but toward morning the pain had much abated and he got more sleep. This, I think, was due to diaphoresis, which had begun at about 5 a. m. In the afternoon he got out of bed, but his limbs would not support him, so he fell on the floor. At 9.30 p. m. was fairly comfortable; gave hypodermic of a fourth of a grain of morphine.

15th, 9 A. M.—Had rested pretty well, but did not sleep. Feels drowsy from morphine. Continued sodium salicylate. At 4 p. m. ordered massage and a drachm of bromidia at bedtime, to be repeated in an hour if required.

16th.—Had a better night up to 1.30 a. m. From this time to 3 a. m. pain became much aggravated in legs and arms. The perspiration now being great, I stopped sodium salicylate.

17th, 11 A. M.—Feels much better, but very weak. At 5 p. m. gave a quarter of a grain of morphine hypodermically, as he was anxious to sleep.

18th, Noon.—Pain in shoulder seems bad. Gave a quarter of a grain of morphine. 9.30 p. m., no pain all day after the hypodermic injection. Gave three eighths of a grain of morphine.

19th, 9.30 A. M.—No pain since last night, and no sleep. Gave tonic.

20th.—Shoulder pains a little; otherwise feels well, but weak.

21st.—Very little pain; appetite returned.

22d.—No pain of any account; able to take a drive.

From this time he is convalescent. The urine contained no albumin.

Case II.—Mrs. A. B. On the 14th examined this lady's throat, and found a patch of membrane on the left tonsil. There was no rise of temperature and no albumin. Gave fifteen cubic centimetres of antitoxine, same as in last case.

15th.—The membrane had partly disappeared. Gave ten cubic centimetres.

16th.—Membrane had almost entirely disappeared.

17th.—Toward evening a rash, bright red and very small, made its appearance. It much resembled the eruption of scarlatina. It was very itchy.

18th.—There was no albumin in urine; no rise of temperature; no nausea.

19th.—The irritation had almost gone, as also the rash.

20th.—Neither itching nor rash. Patient feels quite well.

Dr. Benedict has kindly favored me with the following notes of a case of his: The patient was a nurse-girl, aged sixteen years. As there was diphtheria in the family, he gave her antitoxine (as a preventive), as also several other inmates of the house. None of those inoculated took diphtheria, but the girl, on the fourth day after inoculation, was attacked with a small red rash which produced much irritation. This continued a few days, but disappeared gradually. The amount injected was only four cubic centimetres.

From the above-mentioned cases cited I would venture to draw the following conclusions:

1. That it is impossible to prove that the serum from a particular horse is the cause of the rash because it contains some ingredient of a poisonous nature, as in Dr. Benedict's case only *one* person out of four or five inoculated with serum out of the same phial showed these symptoms.

2. That the *amount* used does not account for the after effects mentioned, as in the cases I have referred to twenty-five cubic centimetres of serum were used, and in Dr. Benedict's only four cubic centimetres were used.

3. That it is most probably an idiosyncrasy of the recipient, and that the percentage of those having that idiosyncrasy must be large.

My own opinion, formed from a larger experience of the use of this antitoxine, is that a smaller dose should be given at a time, but given oftener, thus keeping up the antitoxine action continuously, and certainly reducing the pain of injecting a large quantity at once.

GYMNASTICS AND MASSAGE

AS THERAPEUTIC AGENTS IN NERVOUS DISEASES.

WITH CASES.

By GUST SANDBLOM, M. G. (Stockholm).

For many years several nations have endeavored, by the use of different bodily exercises and manipulations, to ascertain the physiological and therapeutic effect of gymnastics and massage. Founded on the experience of different people, there has been arranged a system of gymnastics and massage in which each of the movements and manipulations has a definite end in the treatment of disease.

Gymnastics is divided into four main branches: 1. Medical. 2. Pedagogic. 3. Military. 4. Æsthetic.

Medical gymnastics has a therapeutic purpose—namely, to arrest and combat diseased conditions—while, on the contrary, the purpose of pedagogic gymnastics is to develop healthy people.

According to types of the antique, medical gymnastics is divided into active and passive movements: active (free or made under resistance), when the patient himself takes a working part in the movement; passive, when the patient does nothing, and the movement is executed on him or with a part of him. Massage manipulations belong to the latter class.

We see the strengthening and animating effects of exercise on the nervous system daily. Compare the laborer, whose work requires hard bodily exercise, with the class of society whose vocations require little or no bodily exercise. How often do we hear the latter complain of symptoms which are the commonest companions of nervous debility, while the laborer rarely presents any symptoms of nervous debility in its true sense!

In order to explain the physiological action of the active movements upon the nervous system we must remember the intimate relation in which the muscles stand to the nerves. When an active movement is to be executed, the will impulse is carried through the motor nerves from the brain-cells to the muscles. Through the co-operation of the peripheral nerves the movement is perceived by the brain. By this muscle contraction nerve centers and peripheral nerves have sprung into activity. The contraction has produced a muscle pressure on the blood and lymphatic vessels. The elastic walls of the arteries are able to resist this pressure; the strength of the blood-pressure in them and the semilunar valves at the opening of the aorta prevent regurgitation of the arterial current. The soft and flexible walls of the veins yield, their valves pointing toward the heart, and the slight blood-pressure in them assists the muscular pressure in accelerating the venous current. By means of this is produced a pressure of the venous blood toward the heart, a suction of the lymph toward the veins into which it is emptied, and thus an acceleration of the arterial circulation. Therefore a richer material has been carried to the active muscles as well as to the nerves.

According to the science of physiology, by inactivity a nerve becomes debilitated, passes through a process of degeneration, and at last loses all irritability; but by activity a nerve becomes strengthened and hardened. Therefore the efficacy of active movements in debilitated conditions of the nervous system can readily be seen.

The physiological effects of the passive movements upon the nerves, especially those of direct mechanical irritation, have in recent years received the attention of prominent men of science, among whom are Zabludowsky, Tigerstedt, Mosengeil, Zederbaum, and Wide. Physiological facts show that the effect of a mechanical irritation of a nerve not only acts during its application, but also continues after it has been withdrawn. The irritability of a nerve increases in proportion to the amount of pressure applied up to a certain point. After this point has been reached the irritability of the nerve diminishes and at last ceases. This is demonstrated by pressure on the neck, between the internal jugular vein and the carotid artery, on the vagus, where a strong pressure causes an inhibition and even stagnation of the beats of the heart. By pressure on the neck over the phrenic nerve cramp of the diaphragm is suppressed, and by static pressure on the other motor nerves cramp and tremor in the respective muscles disappear. Extension of a nerve causes contraction of the neurilemma and thus propagates a pressure on the axis cylinder through the medullary sheath. The effect is similar to that produced by pressure on the nerve. This is demonstrated by extension of the great sciatic nerve. In neuralgia of this nerve slight extension produces greater irritability or increased pain; but, if the extension is continued, the irritability decreases and at last ceases, and the pain disappears. Strokings, centripetal or centrifugal, extend the terminal nerve filaments, and thus produce an action similar to pressure. Blows are stronger irritants than any of these movements. They cause, when applied lightly and in rapid succession over a motor nerve, increased irritability and contraction of the muscles it supplies. On the contrary, by stronger blows applied less rapidly the irritability is diminished, and there is produced an exhausted condition of the nerve. The actions on the sensory nerves are analogous. Practically this has but little value, because it is seldom the patient endures the pain long enough to get the benefit of this exhausted condition of the nerve. However, there is a mechanical irritating agent whose modifying action upon the nerves has given it the first position among mechanical irritants—namely, the direct vibration of the nerve by vibration or friction. This movement, executed under different degrees of pressure, not only possesses the property of raising the irritability of a motor nerve to a higher pitch and thus increasing the contractile power of the muscles and vessels, but also causes the exhausted condition of the sensory nerves without increasing their irritability. Therefore it is an important therapeutic agent in neuralgia. At this point I will state that the direct mechanical vibration of the nerves was known long before Granville presented his idea.

While some of the passive movements have the property of mechanical stimulation, there are others whose purpose is to promote the nutrition of the nerves, such as massage manipulations, rolling, etc. By centripetally executed massage manipulations the underlying veins are pressed together and the current flows in a central direction, thus producing a suction which accelerates the circulation in the lymphatics and arteries. By means of rolling or circular movements the respective fasciæ are alternately extended and shortened. About the most of the articulations of the body the veins are fastened to the fasciæ; hence there is produced an alternate extension and shortening of the veins. Through this arises a greater capacity of the veins, and there is produced a suction force which accelerates the circulation in the blood and lymphatic vessels.

Therefore we clearly see that the physiological effects of the passive movements are efficacious remedies in the treatment of nervous diseases, such as neuralgia, paralysis, locomotor ataxy, etc.

The treatment of peripheral nervous disorders by the manual method requires of the operator a perfect knowledge of the topographical situations of the nerves in order to regulate the treatment more against the subjective than the objective symptoms. The technique of the different movements is of the greatest importance, and is gained only by several years of careful study. Besides, the condition of the patient is changing from day to day, and the movements must be adapted thereto. As an example of the technique, I will describe a nerve vibration. After the operator has, by palpation, found the nerve, ganglion, or plexus which is to be vibrated, he puts the muscles of his fingers, arm, and shoulder into a state of tension, and produces in this condition, in the long direction of the arm, vibrations of the nerve, raising the rate to three hundred a minute, and even more. These vibrations are so extremely fine that a spectator who places his hand on the muscles of the operator's arm scarcely perceives any motion of them. During these vibrations the operator lets the tips of his fingers slide along a nerve or be fixed on a ganglion or plexus, determining for each case the amount of pressure necessary.

The great difference between real medical gymnastics and pedagogic exercises and between medical gymnastics and common massage treatment can be shown best by the following cases, in which the patients had before been treated, not only with pedagogic exercises, but also with common massage, without the slightest success:

December 20, 1893, I was sent by a physician to treat a case of neurasthenia caused by overwork. The patient, a lawyer, forty-nine years of age, was then, on account of increased weakness and pains, obliged to take to his bed. He suffered from slight dyspeptic symptoms; complained of constant fatigue, incapacity to work, sleeplessness, headache, failing appetite, and intensely painful gastric conditions. Palpation showed nothing abnormal save a trigeminal neuralgia, the supraorbital nerves swollen and painful, especially on the right side. (Neuralgia in the right arm, caused by rheumatic myositis, disappeared after the removal of the myositis.) The treatment was begun on December 21, 1893, and nerve friction was first given over the supraorbital and dorsal sensory nerves, nerve vibrations over the solar plexus, respiration movements, together with other suitable passive movements. Gradually day by day more vigorous treatment was given, and the patient began by degrees to take stronger active movements.

The above-mentioned painful gastric conditions disappeared after the first treatment and have not since returned. The patient was improving rapidly, and continued during the treatment his usual professional activity. The treatment, which was interrupted twice by the patient taking business journeys, was ended on May 15, 1894, when all symptoms of diseased conditions had disappeared, and the patient declared himself to be perfectly recovered.

Before I took charge of this case the patient had, among other remedies, tried pedagogic exercise at a gymnastic institute, and in the course of it had grown worse.

On January 2, 1894, I was sent by another physician to treat a case of hypochondria. The patient, a college professor, seventy-eight years old, had suffered from his complaint for thirty years, and was very feeble. The sleep was extremely poor, and had for a long time been obtained by means of narcotics, which were used two or three times during the night. The appetite was good. The patient's mind was very much depressed; he was hypochondriacal and uneasy, and dwelt continuously on the condition of his health. He had during a long time not had any spontaneous evacuation of the bowels; this had been obtained exclusively by means of laxatives used daily. The patient complained of heaviness in the head, pressure and pain in the epigastrium. By palpation there was noticed dilatation of the stomach, with soreness on pressure in the epigastrium and over the sigmoid flexure, the colon being abnormal, distended, and filled with excrement, and there was prolapsus ani. The treatment was started at once, and he was first given nerve vibrations over the occipitalis major, shakings of the stomach, friction over the colon, and vibrations and *effleurage* around the protruding anus, in connection with other suitable passive movements. Day by day as the patient improved the treatment was altered, and he gradually diminished during this time the narcotics and laxatives until they were unnecessary, and he had daily spontaneous evacuations of the bowels and enjoyed natural sleep. The treatment was continued until April 28th. The patient had then completely recovered, the bowels moved regularly, the stomach was in a normal condition, the pain had passed away, the prolapsus had gone back, and the hypochondriacal symptoms had totally disappeared. The patient felt completely well.

As in the preceding case, before I assumed the care of the patient, he had tried the common massage treatment by two skillful masseurs, but without effect.

Several similar cases could be cited here if the space allowed, but those mentioned show us clearly that by the manual treatment of nervous diseases the patient is not cured by means of irregular mass exercises, or by a thorough kneading of his whole body; but there is required a systematic course of treatment based on physiological phenomena.

Every movement, every manipulation, demands the whole ability and care of the instructed operator.

What medical gymnastics signifies I have briefly explained, and will now refer to its method and therapeutic effect on some of the most common peripheral and central nervous disorders.

Against neuralgia and neuritis experience shows that the manual method is a powerful weapon, and this is most clearly illustrated through the following statements:

In the treatment of supraorbital neuralgia and migraine, not only the supraorbital nerve, but also the supratrochlear, nasal, superior maxillary, mental, auriculo-temporal, and occipital should be examined by palpation. By palpation are observed painful and swollen parts of different nerves, especially of the supraorbital near the supraorbital foramen and of the auriculo-temporal and occipital, and usually marked soreness on pressure over the first cervical sympathetic ganglion. The treatment consists of vibrations over the painful and swollen parts of the different nerves, nerve frictions over the first sympathetic ganglion, and other passive and active movements, which are determined by the circumstances of the case, and at last *effleurage* should be given in the direction of the venous current.

In this case, as in neuritis of the facial, congestion of the brain, and similar disorders, I have often found the pain diminished and a general recovery follow the first treatment and become complete after a few applications. The harder cases require, on the contrary, more work, and sometimes the treatment must be continued for weeks before good results can be obtained.

At this point I will say that for ordinary headache I never need to apply more than a few minutes' nerve vibration to have the headache disappear.

In a great number of cases of peripheral nervous disorders found, by means of palpation, to be caused by myositis (rheumatic, etc.), the inflammatory processes or pressure of the swollen muscles cause alteration in the action of the nerves. It is often observed that a nerve resumes its normal activity after the myositis has been worked away by means of the manual method. An illustration of this fact is seen in sciatica when caused by myositis. In this neuralgia the patient is placed during examination in such a posture that the muscles are relaxed, thus facilitating palpation of the muscles as well as of the nerves. The palpation is executed with the greatest care on all the muscles along the nerve, and in the course of it there may be noticed, where the acute myositis is found, a soft swelling, diminished elasticity, doughy consistence, and pain on pressure. Where the chronic myositis is found, there are observed larger or smaller indurations in the otherwise perfectly normal muscle substance. By means of friction and *effleurage* the myositis is removed, nerve frictions are applied along the nerve, the patient is given proper active movements, and the treatment is ended with a nerve extension.

By applying this manual method in cases of sciatica, when the patients, in consequence of pain day and night, can get neither sleep nor rest, I have many times after the first treatment heard them declare that the pain had nearly disappeared and they have enjoyed good sleep. It is, however, not sufficient that the pain should give way temporarily, the myositis must be entirely removed, and the treatment must not stop until all palpable alterations have disappeared. Acute myositis requires only a few applications of the treatment, but chronic myositis requires of the operator hard and energetic work, sometimes continuing through several weeks.

Medical gymnastics can, in disorders of the central nervous system, raise the condition of the nutrition and give back ability of function to muscles which, by central nervous alterations, are so enervated that they have even ceased to react to electric irritation. Therefore it may readily be understood why the active and passive movements should be used in treating this class of disorders. Experience teaches us, too, that by means of the manual treatment the diseases accompanying sensory disorders, such as anæsthesia, hyperæsthesia, paræsthesia, etc., disappear, that spasm gives way, that ataxy in the movements in high degree is acted upon, that the sleep, the appetite, and the whole general condition are improved. The therapeutic effect of medical gymnastics on the central nervous diseases is most clearly shown in tabes dorsualis. In its treatment nerve pressure is first given over the different nerves where the pain has appeared, the abdomen is treated with *pétrissage* and *effleurage*, the bladder with vibrations, the dorsal sensory nerves with nerve frictions, and moderately active movements are given; all the muscles receive *pétrissage* and *tapotement*, and the treatment is ended with general *effleurage*. Although this treatment requires hard and careful work, and must be given to the patient every day, sometimes lasting for several months, often such good results are gained that they inspire confidence in those who before had little faith as to the value of this method, especially in the more advanced cases of these diseases.

Among others, the following central nervous diseases have been treated with success by medical gymnastics: Chronic myelitis, hereditary ataxy, sclerosis cerebro-spinalis multiplex, spastic spinal paralysis, progressive muscular atrophy, chorea, graphospasm, etc.

By the above-mentioned facts I may have attained my purpose—namely, that of giving the reader an idea of the technique and the therapeutic effect of medical gymnastics in the treatment of different nervous disorders.

14 West Thirty-third Street.

SOME CASES OF INFLAMMATION OF THE FRONTAL SINUS.*

By F. N. G. STARR, M. B. (Tor.),
SENIOR ASSISTANT DEMONSTRATOR OF ANATOMY, TORONTO UNIVERSITY.

It is said that in all cases of coryza a congestion of the lining membrane of the frontal sinus occurs. The cases I am about to relate are not those of simple congestion, but are some that presented well-marked signs of inflammation. The ages of the patients varied from twenty-three to thirty-one years. In the first case the patient had contracted a cold, and nine days afterward, when almost well, he commenced to suffer from headache, which became rapidly worse. In the second case there was a history of cold seven days previously, the headache recurring and becoming worse; and in the two other cases the patients had a mild attack of influenza ten days previously, the headache, one of the earliest symptoms, persisting from the first and continuing. The condition began with a sensation of soreness, which the patient referred to either the right or the left eyebrow, according to the side affected. Subsequently the pain was described as gnawing in character and gradually increasing in severity, with exacerbations upon stooping, coughing, sneezing, etc. There was a constant desire to clear the nose, though usually there was no discharge. At intervals, however, a large quantity of material would be evacuated, after which there was considerable relief for a time. If the patient slept, he would be awakened in an hour or two by a recurrence of the pain, but, upon rising and evacuating the contents of the sinus, he would again be fairly comfortable. In passing I may say that, if the infundibulum is patent, bending the head forward and slightly to one side materially assists in emptying the sinus. The accumulation in the sinus was discharged through one nostril only; it consisted of a thick, yellowish, muco-purulent material, and was blown from the nose in large quantities, but, as I have said, only at intervals. Tenderness on pressure over the affected sinus was marked; there was a peculiar sign, and one that I am unable to explain satisfactorily—namely, extreme tenderness on pressure over the tubercle for the pulley of the superior oblique muscle of the eyeball. Œdema of the skin over the affected side occurred in two of the cases, and in one there was some drooping of the eyelid. The temperature was elevated from half a degree to a degree and a half Fahrenheit above the normal; the pulse but little accelerated.

As the attack subsided the discharge gradually became less purulent and more mucouslike in character. The pain disappeared, but there persisted for some days a sense of fullness upon stooping, sneezing, etc.

Internally, in all the cases a brisk cathartic was administered; externally, in three of the cases "mustard leaf," cut into one-inch squares, was applied over the affected side, with directions to reapply at the end of ten minutes, and so on. Relief came within an hour, and a reapplication on that or any subsequent day was unnecessary. The other patient, a woman, not liking the idea of some temporary disfigurement, preferred to use turpentine as a local application; but, though it did relieve the condition, the effect was by no means so speedy. Complete recovery took place in five, three, seven, and eight days, respectively.

These cases I have seen during the course of the past three winters. It is said that "it never rains but it pours," and it would seem that the proverb had again scored a victory, for last spring I saw no fewer than three undoubted cases in one day. Each patient gave a history of cold some weeks before, and added that when he was recovering from it a headache had developed which had gradually become worse and persisted. There was increased pain on stooping, etc., with an intermittent discharge from the nose. The patients were disabled from work.

One of these, a woman, was afraid of the disfigurement that would result from the use of mustard, and used instead hot fomentations and a nasal douche with very happy results. The others used the mustard as before described, and were promptly relieved. When I heard from them a few days later they were still free from the headache, etc., and were able to resume their various occupations. The discharge from the nose, however, continued for some days, though in diminished amount. This was to be expected, for the cases did not come under observation until some time after the onset of the trouble.

The ages in this last series ranged from thirty-five to forty years. This is an interesting feature, and I am inclined to think that the disease occurs only in adult life. As a matter of fact, it can not occur in *very* young children, for there is no sinus in which to develop until near puberty.

You will remember that I drew attention to the marked tenderness on pressure over the pulley of the superior oblique muscle. It is said that "supraorbital neuralgia is hardly ever absent in inflammation of the sinus"—whatever the term *neuralgia* may mean. Perhaps in this case it means an inflammation of the sheath of the supraorbital nerve. If this *is* the case, surely it is possible for the trouble to extend to another branch coming from the same trunk—namely, the supratrochlear—which, as you know, escapes from the orbit between the pulley of the superior oblique and the supraorbital notch.

I think I was fortunate in having to deal with cases in which the infundibulum remained patent, for when stenosis occurs one never knows just how long his treatment may be required, and he does not know of the complications and sequelæ against which he may have to contend.

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* Read before the Simcoe County Medical Association.

REMOVAL OF A
LEAD PENCIL IMPACTED IN THE AXILLA
IN A CASE PREVIOUSLY MISTAKEN FOR ONE OF FRACTURE OF THE CLAVICLE.*

By SINCLAIR TOUSEY, A.M., M.D.,
SURGEON IN CHIEF, ST. BARTHOLOMEW'S CLINIC;
INSTRUCTOR IN CLINICAL SURGERY,
POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL;
ASSISTANT SURGEON, ROOSEVELT HOSPITAL, OUT-PATIENT DEPARTMENT.

This patient is a colored boy about sixteen years old, from whom I removed a lead pencil four inches long, which had been mistaken for six weeks for a necrotic fragment of the clavicle.

The patient came to the Out-patient Department of the Roosevelt Hospital on the last day of February, 1894, presenting a sinus in the axilla and one below the middle of the clavicle, and a probe introduced into either sinus encountered a hard, rough surface suggestive of necrotic bone. He said that six weeks previously he had fallen and hurt his shoulder very badly; that he had been attended immediately by two physicians, who said that his collar bone was broken; and that they had applied suitable bandages. In the course of the next four weeks a very large swelling formed below the clavicle and another in the axilla. After examination at a number of hospitals he was admitted, as a ward-patient, in one of the largest hospitals in the city. This was about ten days before I saw him. There the two large abscesses were incised, but it was decided not to attempt to remove the necrotic fragment until a later date. The boy's mother then removed him from the hospital and brought him to Roosevelt Hospital for treatment.

I found that the hard fragment was freely movable when pushed upon by the probe, and also that pressure in the axilla was transmitted to the hard fragment below the clavicle. It was then perfectly clear that some kind of a spike had been driven into the axilla and broken off after penetrating so far that its point could be felt below the middle of the clavicle.

The sinus below the clavicle was enlarged and the lead pencil withdrawn, to the very great astonishment of the patient and his friends. The sinus passing from the clavicle to the axilla healed promptly under the use of permanganate-of-potassium irrigation, and no impairment of function has resulted.

The entrance of the lead pencil is very easily explained; the boy had climbed a lamp-post to light his bicycle lamp, and his feet slipped off the ornamental ledge which passes horizontally around the post about four feet from the ground. As he fell a lead pencil in his waistcoat pocket caught on this ledge and was driven into the axilla and broken off out of sight.

29 West Thirty-eighth Street.

The Jefferson Medical College of Philadelphia.—Many members of the class of 1879 are desirous of having a class reunion on the occasion of the fifteenth anniversary of their graduation. Owing to changes, comparatively few addresses are known, and therefore this means is resorted to with the hope that every member of the class of 1879 who reads this notice will communicate at once with the class president, Dr. Philip R. Koons, Mechanicsburg, Cumberland County, Pennsylvania.

The New York Academy of Medicine.—Executive officers have been elected as follows: President, Dr. Joseph D. Bryant; vice-president, Dr. William M. Polk; recording secretary, Dr. Reginald H. Sayre; corresponding secretary, Dr. M. Allen Starr; treasurer, Dr. O. B. Douglas (re-elected).

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M.D.

NEW YORK, SATURDAY, JANUARY 12, 1895.

THE FOURTEENTH ANNUAL REPORT OF THE NEW YORK STATE BOARD OF HEALTH.

Two large volumes and a third volume of maps comprise the report for the year 1893. It was transmitted to the Legislature last February, and has just been issued from the press. It begins with a *résumé* of the work that was done to prevent the spread of cholera, should it enter the country, and due credit is given to the active and efficient co-operation by the government inspectors abroad at ports of embarkation. The board properly considers that this work resulted in other good than merely preparing for an epidemic, because it stimulated interest in preventive medicine.

The death-rate for 1893 was 19·50; in 1892 it was 20·78; in 1891, 21·43; and in the two preceding years, 19·65. The months of March and July had the highest death-rates, while June and November had the lowest. The mortality among children under five years old was 33·6 per cent. of the deaths at all ages; those of the preceding years were respectively 33·5, 34·5, 36·6, and 38·6. Zymotic diseases caused 180 deaths in each 1,000 deaths from all causes, the ratio for preceding years being 182·87, 178·0, 169·0, and 206. The mortality from typhoid fever, scarlatina, measles, malarial diseases, and tuberculosis was less than in former years, while that from diphtheria, whooping-cough, cerebro-spinal fever, and acute lung diseases was greater.

During the year 20,310 cattle were inspected for tuberculosis, at an average cost of forty-seven cents for each animal, and 687 were killed because they were tuberculous. In this work the hypodermic administration of tuberculin is employed, and it has been proved that a rise of two degrees Fahrenheit above normal temperature is suspicious, and that a greater rise almost invariably indicates tuberculosis. One fourth of a cubic centimetre of lymph is injected, and for eighteen hours thereafter the animal is not fed or watered. Eight samples of butter were examined bacteriologically, some of which was made from milk obtained from cows known to be tuberculous, but no bacilli were found. This evidence is unreliable as an indication that tubercle bacilli do not occur in butter, for bacteriological examinations of butter purchased at random have shown that ten per cent. of the samples contain tubercle bacilli.

Some two hundred pages in the first volume are devoted to plans for systems of sewerage and sewer disposal in towns and villages and investigations of sewerage nuisances. The five hundred and ten pages of the second volume are devoted to a detailed report of the inspection of herds, including the data relating to each cow injected with tuberculin.

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* Patient shown at a meeting of the Surgical Section of the New York Academy of Medicine, November 12, 1894.

Each year there is an improvement in the character of the work done by the board, and we may hope that the day is not far distant when its investigations may equal those of some other States that have an international reputation for excellence.

MINOR PARAGRAPHS.

THE TEMPERATURE DURING ETHER ANÆSTHESIA.

The *Medical Week* for December 14th publishes the following conclusions of Dr. Angelesco: 1. During the whole time anæsthesia lasts, the temperature falls, so that the hypothermia is proportional to the duration of the anæsthesia. 2. The variation in the temperature is much more marked at the beginning of anæsthesia than subsequently; the difference is found to be most marked during the first and second fifteen minutes. 3. The fall in temperature continues, though in a slight degree, during the deep sleep following the anæsthesia. 4. The temperature begins to rise at the moment of waking, and proceeds in a ratio inverse to the fall, so that the rise becomes more and more marked as the patient becomes more completely awake. The fall in the temperature under the influence of ether has been attributed to increased radiation of the uncovered parts, to the immobility, and to slower oxidation and lessened absorption of oxygen. While Simonin and Kappeler found that the temperature might fall decidedly during chloroform anæsthesia, Dastre considered that etherization lowered it still more, and Angelesco's studies seem to confirm this idea. The latter thinks that the temperature difference following the administration of these anæsthetics is due to the fact that ether causes vaso-dilatation, while chloroform produces vaso-constriction.

THE MEDICAL SCHOOL OF COLUMBIA COLLEGE.

It is announced that the Medical School of Columbia College, commonly known as the College of Physicians and Surgeons, is to profit by further benefactions at the hands of the Vanderbilt family, amounting to more than half a million dollars, to be used in enlarging the anatomical rooms, the Vanderbilt Clinic, and the Sloane Maternity Hospital, besides additional sums to equip the new portions of those departments. In some of its features, we have reason to think, the anatomical department is already quite equal to any in the world, and, with the fresh resources now to be placed at its command, we see no reason why it should not soon be unsurpassed in every respect. The school as a whole is admirable and steadily progressive. As we have often said, it is not the school alone or even the medical profession that profits by such munificent gifts, but the whole community as well.

URANALYSIS *VERSUS* "URINALYSIS."

The *Medical News*, of Philadelphia, closes a review of Dr. Charles W. Purdy's excellent work on *Practical Uranalysis* with this remarkable sentence: "By a strange perversion, the compositor has insisted upon spelling urinalysis 'uranalysis.'" We fancy the compositor is not to be credited with the appearance of the word in its correct form, but rather Dr. Purdy himself. At all events, there is properly no such word as urinalysis.

McGILL UNIVERSITY, MONTREAL.

It is announced that Dr. William Osler, of the Johns Hopkins University, Baltimore, has been called to the presidency of McGill University. Dr. Osler is a Canadian by birth and early training, and it will be but a rendering back of her own to Canada if he accepts this new appointment. While we recognize this, we shall none the less regret the loss to the profession in the United States.

AN INVESTIGATION OF THE DIPHTHERIA ANTITOXINE TREATMENT.

The announcement that the Bureau of Medicine and Surgery of the Navy Department has ordered Passed Assistant Surgeon Cordeiro to study the subject of the therapeutic value of the antitoxine treatment of diphtheria, and to report to the department, is of good augury. The matter is one that should be studied with the guidance of official responsibility.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 8, 1895:

DISEASES.	Week ending Jan. 1.		Week ending Jan. 8.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	10	6	8	3
Scarlet fever	107	13	126	16
Cerebro-spinal meningitis	2	1	0	0
Measles	49	4	78	8
Diphtheria	212	47	236	57
Small-pox	0	0	5	0
Tuberculosis	109	142	30	71

The Late Dr. John W. Pinkham.—At a meeting of the Orange Mountain Medical Society of New Jersey, the subjoined resolution was passed, a copy of which was ordered to be sent to Dr. Pinkham's family and to each of the following journals: The *Medical Record*, the *New York Medical Journal*, the *Montclair Herald*, and the *Montclair Times:*

The Orange Mountain Medical Society of New Jersey learns with deep regret of the death of Dr. John W. Pinkham.

Dr. Pinkham was born in Gardiner, Maine, was a graduate of Haverford College, Pa., and of Bellevue Hospital Medical College, New York. He began the practice of medicine in Montclair in 1867, and was so engaged until 1890, when, by reason of ill health, he was compelled to give up active work. He died on December 7, 1894, of apoplexy. He was the author of numerous articles on hygiene and preventive medicine.

Dr. Pinkham was a charter member of the Orange Mountain Medical Society, and continued an active and earnest member until his resignation, on account of ill-health, in 1892. The society greatly regretted his loss and elected him an honorary member. His work on *Intubation of the Larynx* will long be remembered by his associates. It is the wish of this society to express its deep sorrow for his death and to show its earnest sympathy for the bereavement which has befallen his family.

[Signed.]
Mefford Runyon,
John J. H. Love,
William H. White,
Committee.

The Medical Society of the County of Dutchess, N. Y., held its annual meeting in Poughkeepsie on Wednesday, the 9th inst., under the presidency of Dr. J. H. Doughty. The programme included a paper on The Diagnosis, Complications, and Treatment of Hypertrophic Rhinitis, by Dr. Edward J. Bermingham, of New York; and a demonstration of Bassini's operation for the radical cure of hernia, by Dr. Samuel E. Milliken, of New York.

The Diagnosis of Diphtheria.—The following special announcement has been issued from the Laboratory of Bacteriology of the Philadelphia Polyclinic: "As the early diagnosis of diphtheria from other pseudo-membranous affections of the throat has always been a matter of difficulty, and in some cases of absolute impossibility, the consensus of opinion is that it can be made with certainty only by a bacteriological demonstration of the presence or absence of the Klebs-Loeffler bacillus. Furthermore, the question of the association of other pathogenic and of pyogenic microbes with the Klebs-Loeffler bacillus is of importance in prognosis. In view also of the introduction of the blood-serum therapy, an early and absolute diagnosis is imperative in testing the efficacy of such treatment. The Laboratory of Bacteriology of the Philadelphia Polyclinic is ready to undertake this examination and to report to physicians the bacteriological diagnosis of suspected cases. Sterilized swabs and blood-serum tubes, together with instructions for the method of procedure, can be obtained at the laboratory or from Mr. W. S. Leffman, in the faculty's office. The results of the examination will be reported within twenty-four hours from the time of the return of the tubes. This service is gratuitous."

The Third International Dermatological Congress will not be held this year, as proposed. The time of meeting has been postponed because the British Medical Association meets in London this summer, and it was feared by the executive council of the congress that the autonomy and international character of the congress would be imperiled by holding its meeting at the same time and place, also that the necessarily divided interests of the British dermatologists would prevent that full exercise of hospitality to their foreign visitors that they so much desire to extend.

As the next meeting of the International Medical Congress will be held in Moscow in 1896, it is possible that the Dermatological Congress may not be held until 1897. The foreign secretary for the United States, Dr. George Thomas Jackson, of New York, who has kindly furnished us with the foregoing information, adds that as soon as he hears definitely from England as to this point he will write us again.

The New York Orthopædic Dispensary and Hospital.—The eighteenth annual course of clinical lectures by Dr. Newton M. Shaffer began on the 7th inst., and will be continued on Monday and Thursday afternoons, at five o'clock, until February 21st. The course is free to the medical profession and students.

The City Board of Health.—It is announced that Dr. Charles S. Benedict has been appointed to succeed Dr. Doty as chief of the Bureau of Contagious Diseases.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 30, 1894, to January 5, 1895:*

Matthews, Washington, Major and Surgeon. The leave of absence granted on surgeon's certificate of disability is extended four months on surgeon's certificate of disability.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending January 5, 1895:*

Bradley, Michael, Medical Director. Detached from duty as a member of the Naval Examining and Medical Boards.

Kidder, B. H., Medical Director. Ordered as a member of the Naval Examining and Medical Boards.

Parker, J. B., Surgeon. Ordered to special duty in connection with the investigation of the Ford Theatre disaster.

Stone, Lewis H., Passed Assistant Surgeon. Promoted from Assistant Surgeon.

Cordeiro, F. J. B., Passed Assistant Surgeon. Ordered to study the subject and make a report to the department of the therapeutic value of antitoxine in the treatment of diphtheria and croup.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Sixteen Days ending December 31, 1894:*

Purviance, George, Surgeon. Relieved from command of service at Philadelphia, Pa., and detailed as Medical Inspector of Immigrants at that port. December 18, 1894.

Mead, F. W., Surgeon. Directed to proceed to New York, N. Y., for temporary duty, December 27, 1894. To rejoin station (Washington, D. C.). December 29, 1894.

Carter, H. R., Surgeon. Granted leave of absence for twenty-four days, in lieu of leave granted November 20, 1894. December 21, 1894.

Peckham, C. T., Passed Assistant Surgeon. To inspect unserviceable property at San Francisco Marine Hospital. December 26, 1894.

Kalloch, P. C., Passed Assistant Surgeon. To report at Bureau for special temporary duty. December 29, 1894.

Bratton, W. D., Passed Assistant Surgeon. Placed on "waiting orders," to date from January 1, 1895. December 26, 1894.

Magruder, G. M., Passed Assistant Surgeon. Granted leave of absence for ten days. December 22, 1894. Leave of absence extended five days. December 31, 1894.

Perry, T. B., Passed Assistant Surgeon. To proceed to New York, N. Y., for temporary duty. December 28, 1894.

Cobb, J. O., Passed Assistant Surgeon. Granted leave of absence for three days. December 28, 1894.

Perry, J. C., Passed Assistant Surgeon. To proceed to Philadelphia, Pa., and assume temporary command of service. December 18, 1894.

Nydegger, J. A., Assistant Surgeon. Granted leave of absence for three days. December 18, 1894.

Blue, Rupert, Assistant Surgeon. To proceed to San Francisco, Cal., for duty. December 18, 1894. Granted leave of absence for six days. December 24, 1894. To proceed to Cincinnati, Ohio, for temporary duty. December 28, 1894.

Prochazka, Emil, Assistant Surgeon. Granted leave of absence for twenty-five days. December 17, 1894.

Cumming, H. S., Assistant Surgeon. Leave of absence granted November 27, 1894, canceled. December 20, 1894. Granted leave of absence for seven days. December 31, 1894.

Society Meetings for the Coming Week:

Monday, *January 14th:* New York Academy of Medicine (Section in General Surgery); New York Academy of Sciences (Section in Chemistry and Technology); New York Medico-Historical Society (private); New York Ophthalmological Society (private); Lenox Medical and Surgical Society, New York (private); Boston Society for Medical Improvement (annual); Gynæcological Society of Boston; Maine Academy of Medicine (Portland); Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private).

Tuesday, *January 15th:* New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Kings (annual) and Otsego (semi-annual —Cooperstown), N. Y.; Connecticut River Valley Medical Association (Bellows Falls), Vt.; Baltimore Academy of Medicine.

Wednesday, *January 16th:* Medico-legal Society; Northwestern Medical and Surgical Society of New York (private); New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

Thursday, *January 17th:* New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

Friday, *January 18th:* New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *January 19th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Births, Marriages, and Deaths.

Married.

Wannamaker—Bamberg.—In Bamberg, S. C., on Sunday, December 30th, Dr. Edward J. Wannamaker and Miss Effie Bamberg.

Died.

Attinelli.—In Vineland, N. J., on Tuesday, January 1st, Dr. E. J. Attinelli, in his sixty-third year.

Goldthwaite.—In New York, on Thursday, January 3d, Dr. Henry Goldthwaite, aged fifty-two years.

Hall.—In Robinson Springs, Ala., on Thursday, December 27th, Dr. Thomas D. Hall, aged sixty-five years.

Kurtzeman.—In New York, on Monday, December 31st, Dr. Edward J. Kurtzeman, aged twenty-four years.

Marx.—In Washington, D. C., on Thursday, January 3d, Dr. George Marx, in his fifty-fifth year.

Perl.—In Houston, Tex., on Wednesday, January 2d, Dr. M. Perl.

Roof.—In New York, on Wednesday, January 9th, Dr. Stephen W. Roof, aged fifty-one years.

Letters to the Editor.

ANIMAL EXTRACTS.

Washington, D. C., *January 8, 1895.*

To the Editor of the New York Medical Journal:

Sir: Will you kindly allow me to state in the *New York Medical Journal* that I have no connection whatever with the so-called "Institute for the Administration of the Animal Extracts" advertised in the *New York Tribune* of Sunday last, that it was established without my knowledge or consent, and that I did not even know of its existence till I saw the advertisement referred to. Whether or not the layman who advertises that he gives consultations and administers the extracts violates the law is a question for the consideration and action of the County Medical Society.

William A. Hammond, M. D.

THE LOCAL EMPLOYMENT OF COPPER ARSENITE.

Middletown State Hospital, *January 5, 1895.*

To the Editor of the New York Medical Journal:

Sir: I beg you to let me say a few words in reply to Dr. John Aulde's letter in the last number of your esteemed *Journal.* Dr. Aulde claims priority in the local use of the drug. I would not deny it. Estimating from his records, he was the first to use it locally; but does that interfere with the individuality of my researches in this respect and experience? I have not been acquainted with *The Pocket Pharmacy*; it is impossible for a man in general practice to keep acquainted continually with all the medical literature of our State even; and consequently there can not be a single idea entertained as to the injustice of my article.

It is quite natural that several minds should be led at the same time to the same or very similar conclusions regarding one and the same object, and we see instances of it continually here as well as abroad. Let us give to a few scholars the same problem, and if they are able to follow the normal ways, even if these differ, they all will reach the same result, for this, being the only true one, is the only one possible. Hence, Dr. Aulde, let us have no controversy about *priority* in our work or articles. The aim of both, I am sure, has been the same and *impartial*, and I do not esteem your work *any less* for my little intervention. What I found and wrote was honest and independent of you or others. I have carried the application of the remedy somewhat further still, applying it to the different forms of *ophthalmias*, which will prove, I hope, with others and you, as it did and still does with me, one of its most important fields of action; and I have ventured a theory as to the explanation of its action, which, too, you will admit, I could not have received from others. Let us, therefore, give up all trouble as to who was the second and who first, and, instead of on that, spend our time in further investigation and trials of the remedy as to whose value we both agree so perfectly.

A. Hrdlicka, M. D.

THE CONJOINT USE OF KUMYSS AND MATZOON.

31 West Thirty-eighth Street, *January 8, 1895.*

To the Editor of the New York Medical Journal:

Sir: I not infrequently find patients who dislike kumyss on account of its acid taste, and who object to matzoon because it lies heavy on the stomach. This has led me to try a mixture of the two, and for some time I have used a mixture of equal parts of these two articles of diet, and with such satisfaction to myself and patients that I venture to call attention to it. I believe such a mixture is not only more palatable but more nutritious than either preparation when taken by itself.

John H. Girdner, M. D.

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of November 7, 1894.

The President, Dr. C. C. Barrows, in the Chair.

Sarcoma of the Superior Maxilla.—Dr. Parker Syms presented a patient with this condition. Mary O'H——, seventeen years of age, had come to him on account of a tumor of her upper jaw. The family history and her own previously had been good, and there had been no evidence of syphilis or of tuberculosis. The mother had stated that the first set of teeth had developed properly and had been complete, but that the left eye tooth of the second set had never developed. Three years ago there had appeared a small swelling on the gum, which had steadily grown ever since. It had caused little or no pain. Examination had shown an absence of the upper canine and two bicuspid teeth on the left side and the presence of a well-marked tumor of the superior maxilla. The latter had dilated the bone so as to deform the check. The alveolar surface had been widened, and the mucous membrane separated on each side by a fungous mass which occupied the position of the missing teeth. This tumor had had all the appearances of a new growth, and had probably been a sarcoma; however, it might have been due to a retained tooth. A piece had been removed from the fungous mass and submitted to microscopical examination. Nothing but granulation tissue had been found. A further examination would be made, and then the proper operative treatment would be decided upon. If it proved to be a sarcoma, the entire maxilla would be removed; otherwise more conservative means would suffice.

Duehrssen's Method of Deep Cervical Incision for Rapid Delivery.—Dr. J. Clifton Edgar presented a specimen and photographs and read the following notes of a case in which this method had been practiced:

A. B., aged twenty years, primipara, unmarried, was admitted into the Emergency Hospital, June 11, 1894. According to the statement of her friends, for two weeks prior to her admission to the hospital she had been failing rapidly, suffering from headache, nausea, and vomiting, and quickly grew so weak that she was unable to do her housework. Upon the morning of June 11th the patient was taken with severe headache, nausea, and vomiting; later she was seized with convulsions, and during the day she had three convulsive attacks. During this time she was seen at her home by a physician, who is said to have administered morphine.

At 9.40 on the evening of June 11th, the patient was brought to the hospital by ambulance, being at this time in coma, she having just passed through a convulsion. She was assigned to a ward, and a vaginal examination was followed by another convulsion. The os uteri was found to just admit the tip of the index finger; the supravaginal portion of the cervix had almost disappeared, and, as far as could be determined, the woman was not in labor, being in the middle of the ninth month of gestation. The head presented in the lower part of the uterus. The pupils were symmetrically contracted; legs œdematous to a point above the knees; pulse full and hard, a hundred and forty to the minute; temperature, 105°; fœtal heart sounds were distinctly heard an inch and a half below and to the left of the umbilicus; the catheter failed to obtain any urine from the bladder and a simple enema was followed by good results. Chloroform was at once administered to control the seizures, but in spite of its use the patient passed through five distinct convulsions in the fifty-five minutes following her admission to the hospital.

At 11.43 p. m., after thorough antiseptic preparation of the vagina and external genitals, and the woman being now under the influence of chloroform to the surgical degree, four deep cervical incisions were made after the method recommended by Dührssen, anteriorly, posteriorly, and laterally, from the free border of the external os to the utero-vaginal junction. Blunt angular scissors were used for the operation, the scissors being grasped in the right hand, and the first and second fingers of the left hand were used as guides, the second within and the first without the lower uterine segment. By means of these four incisions full dilatation was immediately secured, the vaginal walls being now continuous with those of the lower uterine segment, four loose, nearly triangular flaps only intervening. The left hand, as the vertex had been made out to the left, was now readily passed into the uterus, the membranes were ruptured opposite the feet, the anterior leg was seized and brought down into the vagina, and the child was extracted. Both arms unfortunately went above the head, and some difficulty was experienced in the delivery of the after-coming head, which was finally accomplished by suprapubic pressure and jaw-traction. The difficulty with the after-coming head was partly due to a slightly flattened pelvis, as the true conjugate measured at the autopsy was a scant four inches. The child was extracted and the cord clamped at 11.52 p. m., just nine minutes from the time the first incision was made.

The child, a male, weighed seven pounds and a quarter, was rather deeply asphyxiated, and was finally resuscitated after a quantity of what appeared to be liquor amnii had been aspirated from its larynx and trachea by means of a small English catheter, an attempt at respiration on the part of the fœtus having evidently been established prior to or during the operation. The child, as far as known, is alive to-day. The placenta was expressed and the uterus and vagina were irrigated. Sharp hæmorrhage followed the incisions until the hand and forearm were introduced for version, but no post-partum bleeding of consequence took place.

The after-treatment consisted of high enemata of castor oil, glycerin, and sulphate of magnesium; of nitroglycerin and stimulants by the mouth and needle and the hot-air bath. During the hour between 3 and 4 a. m. of June 12th, the bowels moved freely twice as the result of the high enemata. At this time it was reported by the nurse that the patient passed a small quantity of urine, but none could be obtained by catheter before or after the operation. Small quantities of hot water were administered every few minutes, and in this way several pints were given. In addition, a pint and a half of hot normal saline solution was injected into the back and thighs. Two marked convulsions occurred after the emptying of the uterus, the first two hours and the second three hours after. To control these, chloroform was used. Oxygen was administered at short intervals, and, after swallowing became impossible, stimulants in hot water were given *per rectum.*

The lowest temperature recorded was 102° F., and this was at 9 a. m. of June 12th. Afterward the temperature rose again, and at 3 p. m. death occurred, fifteen hours after delivery, the patient never having regained consciousness after her admission to the hospital.

Autopsy.—June 13, 1894, twenty-three hours after death. Body well nourished; œdema of lower extremities extending above the knees; a small quantity of serum in the peritoneal cavity; the fundus of the uterus was found on a level with the umbilicus, the right horn being nearest the anterior abdominal wall. The lungs were congested and œdematous, otherwise nothing abnormal was found in the lungs or heart. The brain was not examined. In the left broad ligament, beginning at its base and extending up for two inches between the folds, is readily made out a fresh extravasation of blood, moderate in quantity, rather causing a staining of the tissue than an actual clot. Without opening the uterus the whole genital tract from fundus to perinæum was removed. The exact length of the true conjugate was then found to be slightly under four inches. The parts being laid upon the table, with a pair of blunt scissors an incision was made from the anterior commissure of the ostium vaginæ, along the anterior vaginal and uterine wall nearly to the fundus uteri. The iodoform-gauze packing was thus brought into view, and was seen to be only moderately soaked with blood, two small clots only being found in the whole length of the genital tract, and these were at the fundus of the uterus, over the placental site, one of the size of an English walnut and the other of that of an almond. The gauze being removed, the cervix uteri and the four incisions, clearly defined, were brought into view, and the whole genital tract was then photographed after being submerged in water. [The photographs and specimens were then presented to the meeting.] A few drachms of urine or serum were found in the bladder, but, unfortunately, the liquid was lost before being examined. The kidneys were large, soft, mottled, with smooth surface, non-adherent capsules, and blood flowed freely from the cut surfaces. They were sent to the laboratory for microscopical examination, and Dr. H. S. Stearns has most kindly photographed one of the sections, which shows the condition of acute parenchymatous nephritis.

Dr. S. **Marx** said that this was the first post-mortem specimen from such a case that he had seen. It only served to prove the feasibility of the operation. Where incisions were made sufficiently deep, tearing of the cervix was out of the question. It had never occurred to Dührssen or to any one else who had made these incisions sufficiently deep. In his original paper Dührssen had stated that incisions should be made up to the utero-vaginal junction. The indications for this operation were very numerous according to his original paper, but in a more recent contribution the field of the operation had been greatly restricted by its originator. It should never be done except in cases presenting extreme emergency as regarded the child or the mother. Certain well-known obstetricians in New York had stated that they had never seen a case in which the operation had seemed to be indicated; but it seemed to him that in cases such as acute eclampsia with threatened fatal results it was certainly indicated. He had had six cases where the operation had only been done under the strictest indications; in all but one he had saved both mother and child. The first case had been that of a young woman pregnant with her fifth child. The cervix had been rigid from cicatricial tissue. He had tried ineffectually with his fingers, with powerful steel dilators, and with Barnes's bags to dilate the cervix, but had failed, and, as the coma had been rapidly deepening, he had incised the cervix, and had quickly extracted the child by podalic version. There had been a frightful hæmorrhage immediately after making the incisions, but this bleeding had come from the uterus and not from the cervix. The uterus had been tamponed and the hæmorrhage completely controlled.

If the incisions were not made fully up to the utero-vaginal junction there was sure to be a tear extending up so far as possibly to involve the circular artery, and perhaps even the uterine artery. The so-called Skutsch's operation was irrational and dangerous. He had been surprised to read in a recent book on obstetrics by Dr. Grandin that the author recommended this operation, but said nothing about Dührssen's incisions. A number of superficial incisions were made in Skutsch's operation, radiating outward, and if further operative measures were instituted there were likely to be several deep tears, not only of the cervix, but extending into the broad ligament, associated, perhaps, with severe hæmorrhage. In the Dührssen incisions suturing was a very simple matter if it was indicated for hæmorrhage, which, however, was seldom if ever the case. The point of greatest resistance was at the internal os—namely, above the cervico-vaginal junction; hence, if the incisions were made before the supravaginal portion had dilated, merged into the lower uterine segment, they would extend into the broad ligament, causing serious bleeding. Manual dilatation should be resorted to until this stage had been reached. The so-called elective accouchement would give excellent results in suitable cases, but in cases of grave emergency he knew of no operation which would accomplish so much as Dührssen's.

Dr. **Egbert H. Grandin** said that he would premise his remarks by saying that, as this practice was only as yet on trial, he might be obliged later to retract what he was about to say. At present he had found no field for this operation of Dührssen's, notwithstanding the brilliant results which had come to us from Germany, as well as from this country. He was afraid of the operation. It was certainly one that he would not choose, and which he would hesitate to do so long as there were other methods which were safer for the mother and just as safe for the child. He was never willing to accept statistics from foreign sources; he was awaiting home results, and so far these had not been sufficiently numerous to lead him to adopt this procedure in his practice. He had met with almost every complication in obstetrics, and he had yet to see a case in which it had seemed to him that these incisions were called for, or in which he had not had sufficient time to dilate the cervix manually under deep, surgical chloroform anæsthesia, which also controlled the eclampsia. Under these circumstances he had usually been able to deliver the woman of a living child. If he should see a case where the emergency was so great that he could not wait for manual dilatation, which had hitherto accomplished everything for him, he would be disposed to perform Cæsarean section, as being preferable to these deep incisions. The Cæsarean section, when done aseptically, carried with it absolutely no more risk to the woman. It could be done by the non-expert, and within the nine minutes which Dührssen's incisions, followed by version, had occupied in the case just reported. Notwithstanding the thirty-six cases reported by Dührssen, the four by Marx, and the one by Edgar, he felt that these incisions were very apt to extend farther than was desired. Where manual dilatation had not allowed him to get access to the uterus quickly, the difficulty had always been in the supravaginal portion; hence the Dührssen incisions would not be applicable. For these reasons he had not made reference to Dührssen's operation in the book on obstetrics which he had written for teaching purposes, and to which allusion had been made by Dr. Marx. He had had good results from the superficial incisions, and hence he would continue to teach this method. He had not seen these superficial incisions followed by tearing or extension of the incisions, while they had proved valuable in his individual experience. The tribunal of last resort was, of course, our individual experience; and hence this was his reason for not adopting Dührssen's incisions, and his reason for adhering to the superficial incisions in his teaching and practice.

Dr. W. R. **Pryor** said he had done the operation only once. The patient had been a primipara, and his object in doing it had been simir to that in Dr. Edgar's case. The operation had been rapidly performed, the hæmorrhage had not been of importance, and the cervix had not been sutured afterward. He considered Dührssen's incisions of the greatest value, and would prefer them to *accouchement forcé*. As for Cæsarean section in these cases, he would not for a moment consider it.

Dr. **Marx** asked Dr. Grandin what he would do if called upon to attend a multiparous woman with a cicatricial os, on whom all the usual methods of dilatation had been faithfully tried without avail. He felt sure he would have hastened the end by subjecting his patient to a Cæsarean section. His patient had been seen in private practice, and had belonged to the middle class of people.

Dr. **Grandin** replied that what he would have done would have depended largely, of course, upon his assistant, but in all probability he would have thought only of Cæsarean section to fulfill the indications in eclamptic coma—viz., to empty the uterus. It did this much more quickly than any other method; it also enabled us to bleed the woman, and much more freely than by incision into the uterus. He certainly would do Cæsarean section in hospital practice—if necessary, with a pocket knife. Moreover, he thought he would have saved at least the child, whereas Dr. Marx had lost both woman and child.

Dr. Edgar said that he had not the slightest desire to make light of the operation; he felt sure it was only applicable to such desperate cases as the one in which he had just performed it. It was well known that in about ninety per cent. of cases of eclampsia the convulsions ceased on emptying the uterus, and he knew of no quicker way of emptying the uterus than by Dührssen's incisions followed by version. He was positive that in this particular instance hàd he resorted to laparotomy he would have lost the child. The time necessary for preparing for the operative procedures that had been undertaken in the case cited had only been a few minutes. He had done the operation three times; two of the women had been in coma, and in one there had been repeated convulsions.

(*To be concluded.*)

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

SECTION IN GENERAL SURGERY.

Meeting of November 9, 1894.

Dr. John B. Roberts in the Chair.

Wood-pulp Splints and Splint-making Material.—Dr. William J. Taylor read a paper with this title, and presented a number of splints made from a new material, the invention of Dr. Edward A. Tracy, of Boston. All of these splints had been made by Dr. Tracy, and had been in actual use at the Boston City Hospital. Dr. Tracy had written to the author that the results to be obtained would repay the trouble of acquiring the proper technique, and this trouble was but slight.

The material had been best described, said the speaker, in Dr. Tracy's article, entitled A Brief Splint-technology for Surgeons, which appeared in the *Medical News* for March 17, 1894, and of which the following was an abstract: The basis of the material was wood-pulp, made preferably from the crushed fiber of the poplar tree, and rolled in such fashion that the broken fibers intertwined in every direction and loosely, so that an increase of plasticity was thus given the product. These sheets were further strengthened by having a fabric introduced between the layers of the pulp, or by interweaving with the short, crushed wood-fiber a long jute or other tough fiber. The sheets were rolled of different thicknesses, and were numbered one, two, and three, according to their thickness in millimetres. The chief characteristics of this material were stiffness or rigidity when dry, and plasticity when moist. Its rigidity could be increased *ad libitum* by the use of a silicate solution as a moistener. Its plasticity had a limit, but this was rarely reached except when molding the material over certain complex curved surfaces. Besides the foregoing characteristics, the material possessed that desideratum of a splint-material—extreme lightness. Its cheapness also deserved a passing mention.

Water or a stiffening solution could be used to moisten the material. If water was used the splint must be protected from the perspiration, lest it should soften, by a covering of oiled silk or paper, or best by shellac. A stiffening solution with several qualities to recommend it was that of silicate of potassium; silicate of sodium was almost as serviceable. Any desired degree of rigidity could be imparted to a splint by using this solution, the amount of rigidity depending upon the strength of the solution. Dextrin in the proportion of eight ounces to a pint of water added some tenacity besides stiffness. A splint made with its aid could be moistened with water and remolded—quite an advantage in many cases.

In using this material the aim should be to get barely sufficient moisture to render the material semiplastic. If more moisture was absorbed it became difficult to maintain the molded splint in the desired shape while drying, and it also unnecessarily lengthened the time required to dry it. The best manner of moistening the splint-blank was to apply the fluid used on each side of it alternately by means of a flat paste brush. A little practice would enable one to judge of the precise amount of moistening best suited to the purpose. The time required for drying the molded splints varied from ten to forty minutes, according to the thickness of the material used; any source of heat could be employed; a kitchen fire was serviceable and nearly always at hand.

While drying the splint after it was molded to fit the part, it was well to wind a bit of yarn or string around it to aid in retaining its shape until it was sufficiently hard to keep its form.

Dr. Tracy had also described in detail the application of splints made from this material to different portions of the body, including the head, the trunk, and the upper and lower limbs.

As the speaker had only recently received the material his personal knowledge of the technique was limited, but he said he could readily see the ease with which the sheets could be molded to fit inequalities in the limbs. The extreme lightness of the splint would be of the greatest service in many cases, and it would be much more comfortable to the patient than the heavier and more cumbersome splints in common use. Then, too, by coating the splint with a silicate solution, it became impervious to moisture and could be washed daily with an antiseptic solution.

Thyreoidectomy in the Treatment of Goitre.—The Chairman read a paper on this subject in which he said that his object in bringing this topic before us was to call attention to the ease with which the enlarged thyreoid gland could be enucleated, and the mechanical symptoms caused by its pressure removed. After medicinal treatment had been employed sufficiently long to make it evident that no important change in size was to be expected, it seemed to him that thyreoidectomy need not be delayed.

Perhaps two months was as long as one need wait, if during that time the approved remedies had been employed in full doses. It must be remembered, he said, that goîtres not infrequently varied in bulk without relation to medicinal treatment; hence a diminution was not necessarily the result of the local or internal medication. If dyspnœa, due to pressure on the trachea, was marked, or if hoarseness from compression of the recurrent laryngeal nerves was present, one month's unsuccessful treatment by medicines would probably induce him to operate.

Parenchymatous injections of alcohol, tincture of iodine, or other irritants did not seem sufficiently successful or free from danger to be adopted as a routine, though cases might still come under his care in which he should be willing to try them. Tapping or incision and packing of cystic goître were available; but, after the former, the cyst was apt to refill, and the latter operation made almost as much scar as thyreoidectomy, and was not much less serious. Electrolysis did not seem to have given sufficiently certain results to make it attractive. Tracheotomy might be demanded when tracheal compression was marked, though in some cases subcutaneous or open division of the deep cervical fascia, to allow the bronchocele to bulge forward, would avert the threatened suffocation.

Division of the thyreoid isthmus to lessen pressure, and liga tion of the thyreoid arteries to cause atrophy or prevent increased growth, were operations almost, if not quite, as serious as removal of a portion of the diseased gland.

The speaker referred only to thyreoidectomy, or removal of a portion of the thyreoid glands; total extirpation was unwarranted, because the occurrence of myxœdema as a result of the entire loss of the thyreoid gland was pretty well established, experimentally and clinically. The most disfiguring and most compressing part of the goître might be removed, and a portion of one lobe left to carry on the function of the gland. He would do this even if the part left was apparently not healthy to the naked eye. It seemed pretty well established that a small portion of the gland, or a small accessory gland, if such was present, was sufficient to avert the occurrence of myxœdema in patients subjected to removal of goîtrous masses.

Thyreoid feeding, the administration of thyreoid extract, or the implantation of the thyreoid gland of one of the lower animals in the connective tissue or the peritoneal cavity of patients previously subjected to extirpation of the gland, might overcome the tendency to myxœdema; but until this was really proved the surgeon should do only a thyreoidectomy, and leave a portion of the gland in position.

He did not go over the steps of the operation in detail, as they were sufficiently clear to any operator, he said, who was prepared to deal with sharp hæmorrhage, and who was careful enough to avoid injuring the recurrent laryngeal nerves. A vertical incision was made in the median line of the neck or above the most prominent part of the tumor, and the necessary portion of the fibroid, cystic, or hypertrophic gland enucleated. Perfect asepsis or antisepsis was essential.

The enlarged thyreoid in exophthalmic goître had been subjected to operation, but the general character of this affection would deter him from operating upon the bronchocele, which was only one symptom of the disease, unless further statistics showed its value in an unmistakable manner.

The speaker reported two cases to illustrate the subject. Neither goître had been of great size, but both had been annoying to the patients. They had been radically cured by operation. The enormous fibroid goîtres seen especially in Europe would, of course, be more difficult to deal with, especially in regard to the control of bleeding.

Dr. G. A. Muehleck said he had a case under observation at present with a well-marked hypertrophic goître which he was treating after Garé's method, which was practiced at Professor Bruns's clinic at Tübingen. It was the parenchymatous injection of iodoform in a solution of ether and olive oil, the proportions being seven parts each of olive oil and ether and one part of iodoform. Under this treatment the measurements of the enlarged gland were diminishing rapidly. Garé had published the clinical records of from twenty-five to thirty cases in which this method had been carried out with exceedingly gratifying results. The author was speaking, however, only of the hypertrophic form.

Dr. W. J. Taylor asked if Dr. Roberts had noticed any special respiratory difficulty or nervous shock in his operations when working near the sheath of the vessels of the neck or in deep dissection. In two cases which had come under his observation the patients had been operated upon for goître; everything had seemed to be going on well, when suddenly, during the dissection, in which there had been no hæmorrhage of any account, one of the patients had had some respiratory difficulty and rapidly sunk, dying in a few hours without any obvious reason.

Dr. G. G. Davis said there were cases of goître in which the tumor was not very deeply seated and did not go below the sternum and the great vessels, so that it could be easily shelled out, and the hæmorrhage was almost *nil*. In other cases the hæmorrhage was very marked. He had seen one case where the patient had died upon the table from it. This had happened in the hands of a surgeon of the highest skill. Therefore he thought that the seriousness of an operation depended upon the kind of case it was rather than upon the operation or the surgeon, and accidents might happen in the hands of any one.

Dr. Shoemaker had been present at one of the operations reported, and had been very much pleased with the skill shown by Dr. Roberts in managing the hæmorrhage by carefully securing the bleeding vessels. It had been one of those thyreoids which were not very adherent, and did not descend much below the border of the sternum. The special point of interest to him had been in seeing how easily such growths came out when skillfully attacked.

Dr. Davis said that if these had been cases of intracapsular enucleation he would be much interested in hearing about the bleeding and how it had been controlled. The substance of the thyreoid gland and veins in these cases was so extremely friable that it was almost impossible to control the bleeding by the application of hæmostats. They simply tore out; they would not hold at all. Dr. Wolff, of Germany, had advocated the intracapsular enucleation of the enlarged thyreoid gland, and the method he had recommended had been practically to bite away the growth piecemeal, controlling the hæmorrhage by means of pressure. It took exceedingly skillful manipulation to perform a thyreoidectomy without hæmorrhage by such a method, and most of the other surgeons who had discussed his paper preferred Kocher's method.

The Chairman said he did not work inside the capsule, but principally outside. He cut down outside of the capsule and shelled out the tumor. The operation was extracapsular, except where the capsule was accidentally cut through during the operation. Of course, the goîtres were much smaller here than the goîtres seen in Europe. In the greatly enlarged glands the vessels were increased in number and size, as well as the tissue elements. He had seen a comparatively large number of goîtres at the Woman's Hospital, and he had refused to operate upon a good many of them. It seemed to him, however, that where there was dyspnœa or pain from pressure upon the vessels of the nerves by the growth it was proper to operate. In many cases relief could be obtained by medicine, and if we could succeed in taking the patient's mind off from the goître, the enlarged gland would give less trouble. The cases reported, it seemed to him, had been proper ones for operation. With regard to Dr. Taylor's question, the speaker had seen profound collapse during an operation upon the neck, although not in a case of goître. There had been sudden stoppage of breathing and serious circulatory disturbance. He found that he had been making pressure upon the pneumogastric nerve, and as soon it had been relaxed the breathing had become normal.

(*To be concluded.*)

Book Notices.

A System of Genito-urinary Diseases, Syphilology, and Dermatology. By Various Authors. Edited by Prince A. Morrow, A. M., M. D., Clinical Professor of Genito-urinary Diseases, formerly Lecturer on Dermatology in the University of the City of New York, etc. With Illustrations. In Three Volumes. Vol. III. Dermatology. New York: D. Appleton & Co., 1894. Pp. xiv–976.

How fully the editor's intention, to present a complete review of the subject up to date, has been accomplished will easily be seen by a comparison of the indices of this with those of works upon this subject published several years previously. For example, a work published in 1882, and at that time the most complete upon this subject in the English language, mentions sixteen varieties of erythema, twenty of eczema, and eight of alopecia, while in the present work we find thirty-six, twenty-six, and fifteen varieties of these diseases respectively.

These minute divisions of the subject and refined distinctions between similar though not identical affections show how careful and extensive has been the study of dermatology in the past few years. They are useful, no doubt, from a scientific point of view to the specialist, but to the general practitioner they may tend rather to confuse than to assist. In the coining of names dermatology has been the most active of all the specialties. Admitting that the advancing knowledge of the pathology and ætiology of diseases justifies the giving of names indicative of their nature, we still think that the nomenclature in this branch of medicine could be much simplified and shortened.

The present work, however, has not undertaken to reconstruct the subject. The editor has taken it as it came from those best qualified to speak upon its different branches, and arranged the various contributions into a symmetrical whole with rare ability. The contributors are all American practitioners, and in the list may be found the names of most of the prominent dermatologists of this country. Of those portions of the work contributed by such prominent writers as Fox, Robinson, Hardaway, Bronson, Van Harlingen, and Morrow, there is nothing but praise to be written. Their names guarantee a thorough consideration of all that is known upon the subject and trustworthy advice to follow in the management of those diseases of which they treat. Among the more recent authors who have contributed to this volume the work of some deserves special mention. The anatomy and physiology of the skin have been handled by Dr. Louis Heitzman in a manner unequaled in any other work of this character. The text and illustrations of this section are as near perfect as it seems possible to make them, and the editor is to be congratulated upon his fortunate selection of an author for this section of the book.

The article upon lymphangeioma, including lymphangeiectasis, has been contributed by Dr. C. F. Hersman. His descriptions are concise, lucid, and to the point.

The articles by Dr. Fordyce, Dr. Elliot, Dr. Allen, and Dr. Hartzell all deserve special mention. That by Dr. Fordyce, on leucokeratosis buccalis, should be read by every practitioner, as the disease is not commonly understood and often erroneously treated.

The relations of the *Bacillus tuberculosis*, the psorosperm, and other bacilli to skin diseases having been established, a readjustment of old classifications has been rendered necessary; this has been done throughout the work, and any one reading it may be assured that he is getting the latest pathological and therapeutical knowledge upon the subject.

The mechanical construction of the work is worthy of the highest commendation. The woodcuts and the coloritype and half-tone plates are of the most artistic character, and make almost an atlas of skin diseases in themselves.

The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. Abbott, M. D., First Assistant, Laboratory of Hygiene, University of Pennsylvania, Philadelphia. Second Edition, enlarged and thoroughly revised. With Ninety-four Illustrations, of which Seventeen are Colored. Philadelphia: Lea Brothers & Co., 1894. Pp. xi-471.

We have thoroughly enjoyed the reading of the second edition of Dr. Abbott's book, for it possesses that quality so rare in medical literature (and in fact in technical writings generally) of being interesting and readable. Its clearness, too, is delightful, and, though for the bacteriologist it would be elementary, for the student and the practitioner, for whom it is intended, it may well be doubted if the work could have been more admirably done.

To this opinion, which applies largely to the first edition as well as to the second, must be added a commendation of the additions to the work which appear in this last edition. The chapter on infection and immunity is wisely introduced and the story of our knowledge of these important subjects is concisely and excellently presented. The introduction of colored cuts, too, is a valuable addition, and the cuts are so colored as to convey their information forcibly and well, and are not, as is too often the case, gaudily overdone.

A Compend of the Practice of Medicine. By Daniel E. Hughes, M. D., Chief Resident Physician, Philadelphia Hospital, etc. Fifth Edition, thoroughly revised and enlarged. Including a very Complete Section on Skin Diseases and a New Section on Mental Diseases. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. viii–9 to 568. [Price, $2.50.]

The author states that he has taken advantage of the publication of a fifth edition of his work to add a section on mental diseases so as to increase the usefulness of the volume.

It is one of the most practical works of this character that have been published, and it is surprising how much information is contained within its pages. Necessarily the treatment of any topic is concise rather than comprehensive, but the definitions are good, the symptoms are sufficiently detailed, and the treatment recommended is judicious.

The present edition is likely to continue the popularity that the work has evidently enjoyed.

A Manual of Hygiene. By Mary Taylor Bissell, M. D., Professor of Hygiene in the Woman's Medical College of the New York Infirmary for Women and Children. New York: The Baker and Taylor Co. Pp. xii–338. [Price, $2.]

A work which aims at conciseness should not be condensed at the expense of completeness where detail is necessary.

This is intended to be used as a text-book, yet whole pages are taken up with irrelevant information, while vague and indefinite statements are constantly made regarding important matters.

There are other and better American books, and such English works as those of Parkes and Wilson, which are concise and yet complete.

In the chapter on air two pages are given to an inferior method of bacteriological examination, and the best process is not mentioned.

Food is much better explained in the text-books on physiology.

"Normally, saprophytic bacteria are present in milk in considerable numbers," says the author, citing Flügge, but not his latest results.

"A temperature of 212° F. maintained for thirty minutes will kill all bacteria as well as their spores," she says. This is not true. These are fair examples of loose statements constantly made in this work.

The chapter on the causes and prevention of infectious diseases should be the most important part in a book on hygiene, yet in this instance a rare disease such as anthrax is given a page, while neither measles nor erysipelas receives more than six lines.

In conclusion, typographical errors and errors of expression abound, such as "some nutrient media is," "diffusable," "Petrie's" for Petri's, and "excreta was."

Prescribing and Treatment in the Diseases of Infants and Children. By Philip E. Muskett, Late Surgeon to the Sydney Hospital, etc. Third Edition, revised, enlarged, and rearranged. Edinburgh and London: Young J. Pentland, 1894. Pp. xvii–334.

A more thoroughly practical and valuable handling of the subject than is done in this edition of Dr. Muskett's book would be indeed a difficult task. Both in the part of the work dealing with drugs and in that on applied therapeutics the matter is concise, well arranged, and useful in the highest degree. For the general practitioner, as well as for the specialist, the book will be of great value.

Les Universités des États-unis et du Canada, et spécialement leurs institutions médicales. Par le Dr. O. Laurent, agrégé suppléant à l'Université de Bruxelles. Vingt-deux figures et plans. Bruxelles: H. Lamertin, 1894. Pp. 13–14 to 311.

While fully appreciating the spirit in which this little book is written (for it is a kindly consideration of educational institutions in America, and especially of medical schools and hospitals), we are somewhat amused "to see ourselves as others see us."

The information imparted is in the main correct, though often so brief and condensed as scarcely to do justice to the subject; but some things are rather startling, as witness the French rendering of the name of one of our prominent surgeons, "M. MC. Burnet."

By New York practitioners the space accorded the Syms Operating Theater will perhaps be appreciated, and certainly the author's frank admiration of that building (he says "it is truly a surgical palace") will be gratifying.

The book is rather more interesting than the impressions of us held by foreigners usually are.

The Middlesex Hospital. Reports of the Medical, Surgical, and Pathological Registrars for the Year 1892. London: H. K. Lewis, 1894. Pp. viii–5 to 378. [Price, 2*s.* 6*d.*]

The report for 1892 is full of interest, and, indeed, so valuable is the matter contained in it that it must arouse regret that, with all the material at the disposal of American hospitals, so few of them make that material of service to the profession by the publication of similar reports.

Abstracts of exceptional cases are an interesting feature of these reports, and in the present volume cases of beri-beri, infective endocarditis, myxœdema, and primary carcinoma of the liver may be mentioned as of special interest. In the chapter on pneumonia our attention is called to the supposed favorable import of herpes facialis in that disease by the statement that in the nine cases in which it was noted there were no deaths.

La Pratique journalière de la médecine dans les hôpitaux de Paris. Maladies microbiennes et parasitaires—Intoxications—Affections constitutionnelles. Aide-mémoire et formulaire de thérapeutique appliqué. Par le Professeur Paul Lefert. Paris: Baillière et fils, 1895. Pp. 7 to 288. [Prix, 3 *fr.*] [Manuel du médecin praticien.]

This little volume is the result of the collaboration of twenty-four Paris physicians who are connected with the hospitals of that city, and it contains more than four hundred opinions on divers and sundry measures for treating various diseases. It is intended to permit the educated physician to recall the methods he saw practiced when he was a student and during his hospital service, as well as to give those who have long been away from their *alma mater* a *résumé* of recent therapeutic measures.

The reader may find the more recent methods of treating anthrax, cholera, diabetes, diphtheria, erysipelas, eruptive intermittent and typhoid fevers, gangrene, gout, malarial disease, morphinism, obesity, rhachitis, rabies, scarlatina, scrofula, tuberculosis, and many other diseases.

Those who consult the book are likely to find advice from one whose name is in itself sufficient authority for the therapeutic measure recommended.

BOOKS, ETC., RECEIVED.

A System of Legal Medicine. By Allan McLane Hamilton, M. D., Consulting Physician to the Insane Asylum of New York City, etc., and Lawrence Godkin, Esq., of the New York Bar, with the Collaboration of Professor James F. Babcock; Lewis Balch, M. D.; Judge S. E. Baldwin; Louis E. Binsse, Esq.; C. F. Bishop, Esq.; A. T. Bristow, M. D.; B. F. Cardozo, Esq.; C. G. Chaddock, M. D.; A. F. Currier, M. D.; C. L. Dana, M. D.; George Ryerson Fowler, M. D.; W. T. Gibb, M. D.; W. S. Haines, M. D.; F. A. Harris, M. D.; W. B. Hornblower, Esq.; Charles Jewett, M. D.; P. C. Knapp, M. D.; R. C. McMurtrie, Esq.; C. K. Mills, M. D.; J. E. Parsons, Esq.; C. E. Pellew, E. M.; Judge C. E. Pratt; W. A. Purrington, Esq.; B. Sachs, M. D.; F. R. Sturgis, M. D.; Brandreth Symonds, M. D.; V. C. Vaughan, M. D. Illustrated. Volume II. New York: E. B. Treat, 1894. Pp. 5 to 738.

Difficult Labor. A Guide to its Management for Students and Practitioners. By G. Ernest Herman, M. B. Lond., F. R. C. P., Senior Obstetric Physician to the London Hospital, etc. With One Hundred and Sixty-two Illustrations. New York: William Wood & Co., 1894. Pp. xvi–443. [Price, $2.25.]

A Practical System of Studying the German Language. For Physicians and Medical Students. For Self-instruction. A Modern, Simple, and Practical Method, enabling Physicians and Medical Students to acquire in a very Short Time, and with comparatively but little Effort, the "Medical," as well as the Common "Conversational," German Language. By Albert Pick, M. D. Parts I to XII. Newtonville, Mass.: E. S. Tanner, 1893. Pp. 3–10 to 176.

Formulaire des médicaments nouveaux et des médications nouvelles. Par H. Bocquillon-Limousin, pharmacien de la première classe, etc. Avec une introduction par Henri Huchard, médecin de l'hôpital Bichat. Seizième édition, revue, corrigée et augmentée. Paris: J. B. Baillière et fils. Pp. viii–9 to 316.

Fourteenth Annual Report of the State Board of Health of New York. Vols. I and II.

Mémento formulaire des médicaments nouveaux (avec une table alphabétique des indications). Par Henri Soulier, professeur de thérapeutique à la Faculté de médecine de Lyon, etc. Supplement au *Traité de thérapeutique et de pharmacologie* du même auteur. Paris: G. Masson, 1895.

On Pyrexia and its Treatment. By W. Hale White, M. D. [Reprinted from the *British Medical Journal.*]

Champagne and Strychnine in Chest Troubles of the Aged. By G. Edward Buxton, M. D. [Reprinted from the *Journal of the American Medical Association.*]

How Invalids should come to Southern California. By G. Edward Buxton, M. D. [Reprinted from the *Southern California Practitioner.*]

The Nature and Treatment of Leprosy. By R. H. L. Bibb, M. D. [Reprinted from the *American Journal of the Medical Sciences.*]

Hallucinations and Delusions. By William M. McLaury, M. D. [Reprinted from the *Alienist and Neurologist.*]

An Experimental Investigation into the Causation of Cancer. By D'Arcy Power, M. A. Eng. [Reprinted from the *British Medical Journal.*]

Congenital Pelvic Cyst, probably of Post-anal Origin, leading to Retention of Urine. By D'Arcy Power, M. A., M. B. [Reprinted from the *Transactions of the Pathological Society of London.*]

A Case of Epithelioma of the Scrotum occurring in a Tar Worker. By D'Arcy Power, M. B. [Reprinted from the *Transactions of the Pathological Society of London.*]

Importance of Surgical Treatment in Chronic Purulent Otitis Media. By Gilbert Seaman, M. D., Milwaukee, Wis. [Reprinted from the *Transactions of the State Medical Society.*]

An Introductory Address to the Students of the Medico-chirurgical College. By L. Webster Fox, M. D. [Reprinted from the *Medical Bulletin.*]

Evisceration of the Eyeball. By L. Webster Fox, M. D. [Reprinted from the *Codex Medicus Philadelphiæ.*]

Immediate Capsulotomy following the Removal of Cataract. By L. Webster Fox, M. D. [Reprinted from the *Medical Bulletin.*]

Hygiene of the Eye. By L. Webster Fox, M. D. [Reprinted from the *Dietetic and Hygienic Gazette.*]

Optic Neuritis in its Relation to Intracranial Tumor and Trephining. By James Taylor. [Reprinted from the *Ophthalmological Society's Transactions.*]

Two Cases of Friedreich's Ataxy. By James Taylor, M. D.

Congenital Annular Stenosis of the Vagina. An Improved Method of Operating. By Hiram N. Vineberg, M. D. [Reprinted from the *Medical Record.*]

Municipal Hygiene. The Greatest Need of the South. By George Troup Maxwell, M. D. (Read before the Southern Immigration Congress, at Augusta, Ga., May 31, 1894.)

Hydrophobia. By Hiram Corson, M. D. [Reprinted from the *Medical and Surgical Reporter.*]

Behandlung der Diphtherie mit Salactol. Von Dr. Walle in Wandersleben. [Sonderabruck aus der *Deutschen Medicinal-Zeitung.*]

Sur les centres optiques cérébraux. Par le Dr. S. E. Henschen. [Extrait de la *Revue génerale d'ophthalmologie.*]

Trattato di patologia speciale medica e terapia ad uso degli studenti e dei medici. Pel Dott. Temistocle Santopadre. Vol. I. Sezione I. Malattie infettive esantematiche. Ferrara: Bresciani, 1894. Pp. 54.

Transactions of the Colorado State Medical Society. Twenty-fourth Annual Convention. By-laws and List of Members. Denver, June, 1894.

Prevention and Treatment of Cholera. By Elmer Lee, M. D., Chicago. [Reprinted from the *Chicago Clinical Review.*]

The Medical News Visiting List. 1895. Thirty Patients per Week. Philadelphia: Lea Brothers & Co., 1894.

Miscellany.

Sodium Salicylate in the Treatment of Acute Articular Rheumatism.—In the *Journal des praticiens* for December 22d there is an article on this subject by M. Henri Huchard in which he says that there are three things to be strictly observed in the administration of this remedy: 1. It should be prescribed in large quantities from the beginning of multi-articular rheumatism. 2. These quantities should be divided into small doses. 3. Its administration should be continued after the pains have ceased.

Some physicians, says the author, prescribe progressively increasing doses, but to do this is to lose time, and it is an error in medical tactics which may be prejudicial to the patient. From the beginning, at least ninety grains of the salicylate must be given daily, and this amount should be continued for about two days, when it may be decreased every two or three days until sixty grains have been reached, thus insuring success, for in an adult thirty or forty-five grains are not sufficient. If there is high fever, a hundred and twenty grains may be prescribed, but it is useless and even harmful to exceed this dose.

With regard to the early administration in large quantities, M. Huchard says that experience has shown that its action is all the better when the rheumatism is acute and recent, also that early treatment prevents cardiac complications, which are often manifested on the fourth or fifth day, and not always after the eighth or tenth day, as was formerly believed. The administration of this remedy should be urged all the more since, although it may prevent endocarditis and pericarditis, it has no action on these complications once they have been established. Certain physicians, Bondet, for example, say that sodium salicylate is capable of producing a certain cardiac erethism which is not without influence in the production of endocarditis. This is an error, says M. Huchard. The remedy has no action on the heart except when given in a toxic dose. The same thing may be said in regard to cerebral rheumatism, which has become very rare since the employment of sodium salicylate, which prevents its occurrence as it may prevent endocarditis, pericarditis, and even rheumatic pleurisy.

For children this remedy has a still greater importance than for adults, says the author. In the latter, the articular manifestations must be many; there must be a great deal of rheumatism in order to produce, ordinarily, cardiac complications. In the child the heart acts as an articulation, according to Bouillaud; slight rheumatism with scarcely any fever, or a simple torticollis, is sufficient to cause rather rapid endocardial complications. The pains are sometimes so vague that, at a certain age, they are called growing pains. From the time that rheumatism manifests itself, even in its most attenuated form, the salicylate should be prescribed and auscultation of the child's heart frequently practiced.

M. Huchard prescribes the following doses: For children under a year old, from eight to fifteen grains; for those between two and five years, thirty grains; for those of six years, forty five grains; for those between six and ten years old, from forty-five to sixty grains; for those over ten years, from sixty to seventy-five grains.

With regard to the administration of the remedy in small doses, M. Huchard says: 1. Medicines that are eliminated slowly, such as digitalis and morphine, for example, should be given in a single large dose, because the organism charges itself with the division into small doses. 2. Medicines that are quickly eliminated should be given in small and repeated doses, if it is desired to make a longer and more complete impression on the organism. Now, sodium salicylate is a medicine that is eliminated almost as rapidly as the iodides. It manifests itself in the urine in from five to six minutes after its administration, and it takes, in ordinary cases, from twenty-four to forty-eight hours to become eliminated, that is, when the kidneys are not affected with organic or functional insufficiency.

It is not alone the nature of the medicine, says M. Huchard, or its facility of elimination which should indicate its administration; it is also the nature of the disease, the long or short career of the microbe (if there is a microbe at all), which indicates for prompt and energetic action by means of small doses. For at any moment the diseases may assume a new phase, and against these sudden changes one must be armed; the system must, for a sufficient length of time, be impregnated with the sodium salicylate. For these reasons, says the author, large doses must not be given, such, for example, as forty-five grains in the morning and the same amount in the evening. Fifteen grains should be given every two or three hours regularly. Often the medicine is given during the day only, which is an error, for during the night the rheumatism is more painful; consequently the nocturnal dose is indicated in the course of this disease.

The administration of this remedy, says M. Huchard, should be continued in smaller doses for at least twelve days after the pains have stopped; sixty grains, then forty-five, being given, in order to avoid a relapse. For the rest, the rule is the same as that followed in the employment of quinine sulphate after intermittent fever.

In a serious and infectious form of articular rheumatism, it may be observed occasionally that the pains disappear almost completely, but the fever persists; from this it may be seen, says the author, that the sodium salicylate produces its analgetic effect, but that it is not capable of producing its antirrheumatic action. In this case auscultation must be practiced often, and the employment of the salicylate must be continued without intermission, because a relapse may occur, and because the rheumatism has assumed a very serious phase.

M. Huchard says that rheumatism rarely provokes albuminuria, but if it occurs during the course of an acute attack of the disease, it is not a contraindication of the employment of the salicylate. If, however, albuminuria precedes an acute attack, when it is due to a renal lesion, to nephritis compromising more or less the permeability of the organ, then the salicylate is contraindicated. It may be given also to pregnant women, although in these cases one must proceed with great prudence, and give smaller doses, carefully watching the action of the medicine.

Sodium salicylate may be given in solution or in capsules of fifteen grains each, which must be carefully taken in a certain quantity of liquid, for example, in half a glass of some alkaline water; for sodium salicylate irritates the mucous membrane with which it comes in contact. It should then be diluted as much as possible, and never taken in a concentrated solution. In cases when it is not well tolerated, a milk diet should be prescribed, as it increases diuresis and insures better elimination of the medicament. M. Huchard has often found it well to associate this remedy with sodium bicarbonate, giving them in alternate doses every two hours. The salicylate should be taken during meals or in milk. In abarticular manifestations of rheumatism, the salicylate has only a very doubtful action, if it has any at all.

The Ætiology of so-called Scurvy-rickets.—The December number of the *Practitioner* contains an article on this subject by Dr. Henry Ashby, of Manchester, who, referring to Dr. Cheadle's and Dr. Barlow's views that the anæmic and hæmorrhagic condition sometimes seen in rickets is the result of the absence of fresh food, and is true scurvy, says that he thinks the presence of true scurvy has certainly not been proved in these cases, that, in some cases at least, there has been no deprivation of fresh food, and that there is much to be said in favor of the view that there is a close connection between this hæmorrhagic condition and acute rickets. Some infants, he says, between the ages of six months and two years, who have perhaps suffered much from bronchitis, who have been fed on anything but an ideal diet, are very anæmic, with rickety bosses on the ribs, and the chest falling in with every respiration, while the epiphyses of the long bones are more or less tender. Perhaps, after a few days the urine is colored, and it is evident that blood is oozing from the capillaries of the kidneys or the bladder. Or there may be evidence of bleeding beneath the periosteum or elsewhere. The question naturally arises, Where does rickets end and scurvy begin? Why, says Dr. Ashby, assume the presence of a new disease when a tendency to bleed is added to anæmia? Does not the same thing happen in other diseases? In tuberculosis in children there is often marked anæmia with a tendency to bleed from the gums and from other parts, although there has been no absence of fresh food of any kind.

There seems to be a doubt, says the author, that scurvy is to be considered as a disease which is brought on by the absence of fresh vegetables or by the absence of fresh food generally. Fresh vegetables are looked upon as preventives of scurvy, but with regard to fresh food, such as meat and milk, there is no such agreement. An absence of fresh vegetables from the dietary of an infant can hardly cause scurvy, for during the first year neither grapes, oranges, potatoes, nor watercresses find any place in it. While it is true that in some of the reported cases of so-called scurvy-rickets there is a history of almost exclusive feeding on preserved foods,yet this is by no means always the case; in some of the author's cases fresh milk, raw-meat juice and potatoes entered into the diet.

In the cases of scurvy collected by Dr. Sutherland, says the author, there is an overwhelming proportion occurring between the seventh month and the twenty-fourth; in his own cases all the patients were between these ages, and this, he thinks, can hardly be accidental, but points to a close association with rickets.

The fact that recovery takes place more or less quickly after antiscorbutic treatment has been begun is one of the strongest points in favor of the scurvy theory. In some, undoubtedly, improvement begins quickly after suitable treatment has been begun. Milk, cream, or whey, according to the capabilities of the child, raw-beef juice, orange juice, and emulsion of cod-liver oil, with as much fresh air and sunlight as possible, constituted the treatment in Dr. Ashby's cases. In the worst cases improvement was slow, and in several others fresh bleedings made their appearance after the treatment was begun. The author thinks that fresh air is just as important as fresh orange juice, and that fat in some form or other, if it can be digested and absorbed, is also of the highest importance. There can not be much doubt that a long-continued use of any one food, breast milk alone excepted, is bad, especially if that food is poor in fat. Carbohydrates can not take the place of fat permanently. Sterilized milk, if it has been long heated, especially at the high temperature of from 215·3° to 221° F., is apt to be injured as a food in consequence of the separation of the fat. Pancreatized milk or malted milk is good as a substitute, but it is not safe if it is to form the sole food for months together.

Dr. Ashby thinks that it would be wise to drop the word scurvy altogether in connection with these cases, and to speak of them as rickets with a hæmorrhagic diathesis. That there is a close association between the two conditions, he says, few will deny, but what that association is it is impossible to say. So little is known about the pathology of rickets, and so much has yet to be learned about its ætiology and the links which connect the dyspepsia and bad feeding with the changes which take place in the bones, viscera, nervous system, and blood, that we are hardly in a position to form hypotheses. There can be no doubt, says the author, that indigestion and improper food are largely responsible for rickets, and are thus more or less directly concerned in the hæmorrhagic diathesis which supervenes in some cases. If the word scurvy is to be retained for such cases, we must enlarge its ordinary signification.

Strontium Salicylate.—Dr. H. C. Wood, of Philadelphia, contributes an article on this subject to the *University Medical Magazine* for January, 1895, in which he says that for some years he has been trying to find a way of obtaining the general action of the salicylates without gastric disturbance. At one time, he says, most of his patients received oil of gaultheria, which in many cases is less disturbing to the gastric mucous membrane than salicylic acid or sodium salicylate. Subsequently, however, he found that ammonium salicylate, given in milk, was usually much better borne than the oil of gaultheria. Dr. Wood's clinical experiments closely accord with Laborde's statements that the haloid strontium salts agree with the human digestive apparatus very much better than the corresponding salts of sodium and potassium, and it occurred to him that the strontium might be able to overcome the disagreeable effects of salicylic acid. When given intravenously to a dog, in a fatal dose, it produces death by affecting the respiration, followed almost at once by an extraordinary post-mortem rigidity. In some instances there was vomiting, but never purging. In order to determine whether it had any distinct depressing influence on the circulation, the following experiments were made with sodium and with ammonium salicylate: 1. A six-per-cent. solution of sodium salicylate was administered to a dog weighing 28·6 kilogrammes. The arterial pressure was not distinctly affected by the intravenous injection of a hundred cubic centimetres; after forty cubic centimetres more were given there was a rise of ten millimetres in the arterial pressure, which was maintained for between one and two minutes, when under the influence of another twenty cubic centimetres the pressure began to fall slowly. Again twenty cubic centimetres were given and the rate of fall was increased. When the arterial pressure had decreased from a hundred and eighty to fifty-two millimetres, the respiration ceased; the heart continued to beat for half a minute longer. 2. A six-per-cent. solution of ammonium salicylate was injected into a dog weighing 21·4 kilogrammes. The rapid injection of twenty cubic centimetres of the solution into the jugular was followed by a pronounced immediate fall of pressure, and a few seconds later by a rise. After repeated injections until eighty cubic centimetres had been given, the pressure rose to twenty millimetres above the normal. This rise was increased sixteen millimetres by the gradual injection of eighty cubic centimetres more. Then a very slow injection of forty cubic centimetres more was administered, after which violent tetanus developed, and the arterial pressure rose to fifty-six millimetres above the normal, falling rapidly half a minute later, when the muscles relaxed, during rest, to a hundred and twelve millimetres below the normal. Ten seconds after this the respiration ceased, the heart continued to beat for twenty seconds, and the arterial pressure gradually descended to zero. 3. In this experiment a six-per-cent. solution of strontium salicylate was used. After the injection of a hundred and fifty cubic centimetres the blood-pressure was still above the normal, although a few seconds later an additional injection of ten cubic centimetres was followed by a rapid fall of the pressure, ending in death by respiratory arrest. The heart continued to beat distinctly for twenty seconds after respiration had stopped. In other words, eleven cubic centimetres to the kilogramme of a six-per-cent. solution of strontium salicylate, intravenously injected in broken doses for a length of time, did not produce any immediate fall of pressure.

Contrasting these results, says Dr. Wood, with those obtained from the use of the sodium and the ammonium salicylates, it will be seen that the dose of strontium salicylate necessary to lower arterial pressure was nearly twice that of the sodium salicylate, and distinctly more than that of the ammonium salicylate.

With the knowledge acquired from these results, says Dr. Wood, it seems entirely safe to use the strontium salicylate in the human subject, and he has accordingly employed it in a large number of cases in doses ranging from fifteen to a hundred and twenty grains a day. The result of these trials shows that in doses of from five to ten grains, given after meals, the salt very commonly improves digestion, and the dose of five grains an hour after meals, in flatulent dyspepsia and in various conditions of tendency to fermentative changes in the alimentary canal, is a useful intestinal antiseptic, one that has seemed to the author to give better results than salol, naphthol, or any of the older intestinal antiseptic remedies. It does not produce cinchonism so readily as the older salicylates, but it may produce a pronounced degree of cinchonism. The author has not tested it in acute articular rheumatism, but thinks it would be less efficacious than the ammonium salicylate. In muscular or subacute rheumatism, as well as in chronic gouty conditions with a tendency to digestive disturbance, Dr. Wood has found it to be a very valuable remedy, exerting the action of the salicylate upon the diathesis, and improving instead of injuring the digestion. It may be given in solution, but it is best administered in capsules; a five-grain capsule is of moderate size, and of these two or more may be taken at once. The taste of this salt is similar to that of the ordinary salicylates, but distinctly less offensive, so that, if it is preferred, it may be given in a weak solution.

Ichthyol in Eczema.—The *Lancet* for December 22d publishes an account of a case which had come under the observation of J. K. Tomory, M. B., of Edinburgh. About three years before the author saw the patient she had an eczematous eruption on the back of the neck, which gradually spread to the scalp. The hair was cut short, and a physician consulted, who prescribed an ointment and Fowler's solution. From that time she had never been entirely free from the eruption, although at times, especially when she was pregnant, it was less troublesome than at others. The eczema was very much worse in the spring. In July she consulted the author, who prescribed one application of a starch-and-boric-acid poultice, to be followed by an ointment containing an ounce of ointment of oleate of zinc, half an ounce of ointment of oleate of mercury (twenty per cent.), and six ounces of boric-acid ointment. The following mixture was also prescribed: An ounce of the compound syrup of hypophosphites, forty-eight minims of Fowler's solution, and eight ounces of water; half an ounce of this to be taken after eating. The ointment allayed the itching, but otherwise did not improve her condition. In September the author resolved to try ichthyol and gave the patient the following instructions: The head and neck were to be well washed with soft soap in order to remove any ointment that might remain, and at night a starch poultice was to be applied. The next morning the ichthyol was to be applied, and it was to be renewed once a day. Before every application the hair was to be well brushed. There was absolutely no other treatment given, says the author, and by the end of a month the skin on the neck was quite normal, and only one or two small spots could be seen on the head. By November 10th she was absolutely free from all traces of eczema, and has continued so ever since.

Mr. Tomory says he has had considerable experience in the treatment of eczema, but has never had so intractable a case. Usually he has been able to check it by means of the following lotion: Two ounces of oxide of zinc, an ounce of boric acid, half an ounce of subnitrate of bismuth, and twelve ounces of olive oil. Arsenic is used internally when the inflammatory symptoms have subsided.

The Straining and Overtaxing of the Heart in Athletic Exercises.—The *Mercredi médical* for December 19th contains a report of a recent meeting of the *Académie de médecine* at which M. Teissier, of Lyons, read a paper on this subject. On examining ten runners who had reached the goal, he says, the apex of the heart appeared to have deviated to the right [a report in another journal says to the left] from two to three centimetres; in one man, affected with aortic insufficiency, who came in second without fatigue, the apex was lowered, and, as a consequence of this deviation, the base remaining fixed, a notable increase of the precordial dullness was observed. This increase was evidently connected with a dilatation of the right cavities, as was shown by the deviation of the apex and by the results of auscultation. The cardiographic outlines collected showed the brevity of the systole and its sharpness; the characteristics of the beating of the forced heart described by M. Pitres were found.

Among all the men the arterial pressure was lowered at least six centimetres. The mechanism of this phenomenon, says M. Teissier, seems to relate to overtaxing, to general fatigue, and to secreted toxic products. There is a certain degree of muscular overexcitability which appears to be due to toxic products accumulated in the blood. There is a slight but constant diminution of faradaic excitability and an increase of galvanic contractility; the patellar reflex always disappears. In two thirds of the subjects examined there was appreciable albuminuria with an increase of the proportion of urea. These results, says M. Teissier, seem to establish the fact that athletic exercises are not free from danger when carried to an extreme.

The Treatment of Traumatic Peripheral Neuritis.—At a recent meeting of the *Académie de médecine*, a report of which is published in the *Presse médicale* for December 22d, M. Delorme presented the following treatment for neuritis:

The cicatrix is seized between the thumb and forefinger and pressed with great force for several seconds; an interval of a few minutes is then allowed to pass, and the pressure is again applied. Generally one application is sufficient; but in obstinate cases the pressure has to be applied two or three times at intervals of from three to four days.

The results obtained from the application of a method so simple and so easy are said to be excellent. M. Delorme cited eight cases which had come under his observation in which there had been complete recovery.

Diluted Hydrobromic Acid.—The January number of the *American Journal of Pharmacy* contains an article by Charles H. La Wall, Ph. G., on the purity of this acid. Diluted hydrobromic acid, he says, is one of the articles of the Pharmacopœia for which there is no official process of manufacture, although the standard of purity is fixed by the Pharmacopœia in the same way as that of the other acids. While diluted hydrobromic acid is not an article of everyday mention in prescriptions, the standard of its purity should be as vigorously upheld as that of the acids more frequently used.

Some time ago the writer had occasion to examine a sample of diluted hydrobromic acid which was known to have been made by Fothergill's process. The results of the examination, he says, were so widely at variance with the requirements of the Pharmacopœia that other samples were procured from various sources in order to ascertain the purity of the article as commonly found in the market. Six samples were carefully examined, all but one of which came from wholesale and manufacturing houses in Philadelphia, and not one of the samples tested fulfilled all the requirements of the Pharmacopœia, and, while one or two approximated a state of purity, the remaining specimens were quite impure and showed evidence of very careless or faulty methods of manufacture. Free sulphuric acid was present in several of the samples, an inexcusable contamination, says Mr. La Wall, and all of them indicated a higher percentage of absolute hydrobromic acid than is allowed by the Pharmacopœia.

The Effect of Massage on the Circulation.—The *Journal of Physiology* for December 15th publishes an article on this subject by Dr. T. Lauder Brunton and Dr. F. W. Tunnicliffe, who, after giving a detailed account of their experiments, sum up the results as follows:

1. During the massage of muscles the flow of blood through them is increased.
2. Immediately after the cessation of massage, an accumulation of blood occurs in the massaged muscles, which is rapidly followed by an increased flow through the muscles.
3. The massage of a considerable muscular area causes at first a slight rise in the general blood pressure, which is followed by a fall that in some cases amounts to a fifth of the initial blood pressure.

The Disposal of Garbage in New York.—The following resolutions, adopted by the Section in Public Health, Legal Medicine, and Medical and Vital Statistics of the New York Academy of Medicine, were approved by the academy on January 3d:

Whereas, In many cities garbage is disposed of by garbage furnaces within the city limits, without odor, smoke, or nuisance of any kind whatever, as well as at a profit; and

Whereas, In New York the disposal of garbage by scows entails a complete loss of $175,000 per annum, and causes an intolerable nuisance to the dwellers on the neighboring coasts because of garbage, ashes, and carrion floating ashore, which substances may, by means of garbage furnaces, be transmuted into steam power that would have a value of $160,000 a year; therefore be it

Resolved, That the present cumbersome, expensive, and insanitary system of collecting, transporting, and disposing of the household garbage of New York should be abolished.

Resolved, That the city be divided into districts, and that the privilege of collecting and disposing of garbage be sold to contractors, held under bonds for the faithful performance of their duty.

Resolved, That it be recommended that coal ashes be collected and stored by householders without swill admixture, as is at present required by law.

Resolved, That odorless garbage furnaces be constructed in each district, as in other cities, and that all garbage be disposed of immediately by incineration therein, while the ashes and junk be disposed of by the contractor as a source of profit.

Resolved, That, inasmuch as at the present time the sanitation of households in New York is under the supervision of the board of health, it be recommended that the collection and disposition of the household garbage be committed to that department and divorced altogether from that of street-cleaning.

Resolved, That this reform is recommended in the interest of public economy, as the present system in vogue is unsatisfactory and expensive; besides, by establishing modern scientific discoveries and principles, what is now a matter of great expense may be made a source of revenue to the city.

S. T. Armstrong,
[Signed.] T. H. Manley,
D. H. Stewart.

THE NEW YORK MEDICAL JOURNAL, JANUARY 19, 1895.

Original Communications.

THE
ARTHROPATHIES OF LOCOMOTOR ATAXIA.*

By PARKER SYMS, M. D.

In the issue of July 7, 1888, of the *New York Medical Journal* I published a paper on Arthropathia Tabidorum. My excuse for addressing you now on this subject is my desire to emphasize some points of importance, to state the results of my continued study of the disease, and because I believe this theme to be one of particular interest to the general practitioner, and yet one concerning which very little has been written.

The study of structural diseases of joints depending upon central and peripheral nerve lesions is of comparatively recent date. As progress has been made in this direction it has been found that a number of diseases of the nervous system may be responsible for grave arthropathies. These nerve lesions are usually those which belong to the degenerative variety, in which the essential tissues of the nerve centers or trunks are so altered as to no longer be proper nerve tissue, or in which there is absolute destruction or loss of the nerve structure. Among this class those diseases which involve the posterior portion of the spinal cord, affecting sensation and circulatory conditions, are the ones which are particularly responsible for the joint diseases. Principal among them are locomotor ataxia and the condition known as syringomyelia.

Syringomyelia is a condition in which there are clefts or cavities in the substance of the spinal cord. These clefts may be congenital or may be the results of degenerative disease. In the latter case the disease consists of three stages: (1) The spinal cord is infiltrated with round cells and connective-tissue nuclei; (2) the replacement of the medullary elements by a feltlike connective-tissue increase or gliomatous mass; (3) this has a tendency to break down in its center, leaving cavities lined with this feltlike connective tissue. These cavities usually contain clear serum, sometimes bloody or hyaline material.

Locomotor ataxia consists pathologically in degeneration of the posterior columns of the spinal cord, apparently extending from the center outward; it finally involves the posterior nerve roots, often the lateral columns, and, as has been shown by careful investigators, the nerve trunks and terminals are also involved. The degeneration consists in atrophy and loss of the essential nerve tissue, accompanied by an increase of connective tissue and a deposit of fat.

That these and similar diseases do cause very grave and remarkable arthropathies is well known, and yet the exact relation of the spinal lesion to the joint trouble does not seem to be clear, and many opposed opinions and theories have been advanced.

The study of the ætiology of the arthropathies of locomotor ataxia needs first the study of the parent disease and subsequently a study of the joint trouble.

The causes of locomotor ataxia are certainly not known and are only surmised. All that can be said is that it is more common among men than among women; that it is a disease of middle and advanced life. In a very large percentage of cases the patients have had syphilis. In the majority of cases one can obtain a history of excessive venery, of excessive brain and nerve tax, or excess in the use of alcohol. Often the onset is charged to some severe crisis involving exposure to wet and cold combined with physical exhaustion. There has been a great deal of dispute concerning the relation of syphilis to tabes dorsualis. I believe the majority of authors regard syphilis as the cause of locomotor ataxia—*i. e.*, that the disease occurs as the direct result of syphilis, and never in patients who have not been so infected. A few regard a previous history of syphilis as merely a coincidence and not as a cause, while some regard syphilis as one of several predisposing causes of the spinal lesion. My own conviction, based on the study of a sufficient number of joint cases, is that locomotor ataxia may occur independently of syphilis; that any prolonged and destructive tax upon the nervous system may so exhaust it that the circulatory conditions shall become unbalanced and the nutrition of the cells so altered as to result in degeneration of the nerve substance. Excess of venery, of prolonged intense nerve work, prolonged deprivation of sleep, rest, and nutrition, excess in the use of alcohol and in the exercise of nerve energy under stimulation, all diminish the opportunity for physiological rest and for cell repair. Any grave disease, as tuberculosis or syphilis, also taxes the system and not only may, but certainly does, act as a factor in the production of disease of the nerve centers. Certainly, if syphilis is necessary for the production of tabes dorsualis, there can be no case without it; but in a large number of tabetics one can neither obtain a history of syphilis nor can he demonstrate any syphilitic lesion. Syphilis is unfortunately a very evident disease, and the cases which are severe enough to be the cause of locomotor ataxia may reasonably be expected to leave some impression on the patient's mind, if not upon his body. Certainly it is but surmise to allege that syphilis has been found in a patient when no evidence of the disease exists and none can be recalled. It must be conceded that excess of venery is a predisposing cause of syphilis. Perhaps the excess which made the syphilitic infection possible may also have damaged the nervous system by exhausting and overtaxing its powers of repair.

Concerning the ætiology of the joint lesions in locomotor ataxia, I take the liberty of quoting from my former paper. It has been maintained:

1. That it is purely a mechanical condition caused by the abnormal gait of the patient, due to locomotor ataxia.

2. That it is due to a direct trophic disturbance of central origin — a certain point being involved for a corresponding joint, or that there is one center responsible for the nutrition of joints. (Buzzard suggests that this hypothetical point is in the medulla.)

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* Read before the New York State Medical Association, October 11, 1894.

3. That it is not a peculiar disease, but is (*a*) arthritis deformans coincident with the tabes, or (*b*) a purely syphilitic joint in the same connection.

4. That the serous effusion is due to trophic disturbance, and that the changes in the bone are due entirely to the pressure of the effusion and the consequent anæmia of the periosteum. (Macnamara.)

5. That it is due entirely to a traumatism and that the primary changes are inflammatory, but, owing to analgesia, the joint is not kept at rest and progress is different, merely on that account, from ordinary traumatic arthritis.

6. That it is due to a direct trophic disturbance, like ulcus perforans, not of central origin, but due to atrophy of the peripheral nerves (Weizsächer). I understand this to mean that only the nerves of the diseased joint were atrophied, and therefore this joint became involved.

7. That it is due to traumatism or some change in the condition of the joint to be affected. The progress attained depends on the fact that the nerves of all large joints are degenerated, and some degeneration occurs in the structures of apparently healthy joints in tabetics, as pointed out by Jurgens and Westphal.

I am inclined to the last theory. The fact that the nerves and structures of seemingly healthy joints are in a state of partial degeneration has been demonstrated, and it only remains to assign a reason why a certain joint should continue in the process. I think it is reasonable to look for this in some local condition, such as traumatism. If it were simply a continuation of the degenerative process, other joints would be involved in time. But a patient may have a single joint affected for years.

The idea that it is dependent on the peculiar gait is not tenable, for the disease occurs before inco-ordination is present, and patients have developed it while lying in bed; also because it occurs in the upper extremity.

Neurologists have not found for us the central point alleged by Buzzard and Charcot, and changes in the peripheral nerves seem to explain the disease more satisfactorily. Charcot's disease differs in its pathology and symptoms from arthritis deformans and syphilitic joints sufficiently to give it an identity as a peculiar condition.

The idea that it is caused by the serous effusion, as suggested by Macnamara, it seems to me does not need contradiction.

I do not consider it of a purely traumatic nature. The changes are none of them of an inflammatory nature, and certainly must be regarded as due to nerve changes.

The pathological changes in these joints are remarkable, involving both the bone and the soft parts, producing the most extreme deformities. The synovial membrane is usually anæmic, though sometimes congested. The capsule becomes very much thickened by connective-tissue increase. The circumarticular structures are often the seat of extensive connective-tissue hyperplasia, and this mass forms a large part of the deformity. The entire capsule may be destroyed and be replaced by a mass of new connective tissue. There is always a hydrarthrosis early, and a peculiar effusion into the deep fascia and the soft parts, sometimes extending throughout the limb. The capsule and ligaments are stretched and distended by the swelling and hydrops. This gives an abnormal mobility to the joint. Ossification occurs in any of the tissues at and about the joint. Bone formations may be found in the tendons, muscles, fasciæ, and capsules, or they may be formed as free bodies in the joint cavity. There are two classes of cases, owing to two sets of processes which occur in the bone tissue—viz., the hypertrophic and the atrophic. We may find a joint diseased in both manners—that is to say, one bone of the joint may be hypertrophied and the other atrophied. In the atrophic form the ends of the bone and the epiphyses are more or less absorbed, and the bone may terminate in a rounded end like a drumstick.

The hypertrophic form produces great increase in the size of the bone by large bony deposits and outgrowths on the epiphysis. These bony deposits are not confined to the epiphyses, but also involve the shaft, and are often found on the capsular and soft parts. Spontaneous fractures are very common. They may involve the shafts or the processes. These fractures may unite, often forming good union, but the callus is usually overabundant. The bone structure is changed microscopically and chemically. As in osteitis rarificans, the lamellæ are absorbed and broken down so that several canaliculi are transformed into one large canal. The bone plates are thinned, and the canals are filled with fat. As in osteomalacia, the phosphates are diminished to about eleven per cent., and the fat is increased to about thirty-seven per cent.

In the hypertrophic forms the joint functions are usually better than in the atrophic. In the latter the opposing surfaces are diminished, and the lack of support allows great freedom of abnormal motions.

The symptoms are well marked, and the disease is easily recognized. As these joint affections come early in the course of locomotor ataxia, we may not have many symptoms of that disease present to aid our diagnosis; but we are sure to find some. The prominent symptoms of tabes are darting neuralgic pains, numbness and peculiar sensations in the feet and legs, perverted response to surface irritation, as an exaggerated sensation of cold applied to the skin, or the application of cold may produce a sensation of heat, etc. Tactile sensation is often delayed. Analgesia is a prominent early symptom of tabes, and is a constant condition. So is loss of patellar reflex. The Argyll-Robertson pupil is one of the characteristics of the disease. Inco-ordination of the muscles of the extremities is very prominent as a symptom, but it comes on late in the disease. Owing to the blunted sensation in the feet there is more or less inability on the part of the patient to walk or stand steadily without the aid of sight, and in the dark, or with the eyes closed, he will sway and stagger. Inability to walk at night and the peculiar sense of numbness are usually the first warnings to the patient of this disease of the spinal system.

The joint disease is characterized by its sudden onset and comparative absence of pain. Sometimes the first indication of the disease is a spontaneous fracture of a bone shaft, but usually there is a sudden and rapid swelling of the limb produced by an œdema of the deeper parts.

This general swelling subsides, but the joint is found to be deformed, and remains enlarged. The peculiar deformity of the joint, its rapid development, the absence of pain, attended by some of the characteristic symptoms of locomotor ataxia, complete the means of diagnosis. It may be mistaken for arthritis deformans, but this latter disease comes on slowly, is attended by severe pain, and you will be aided in differentiating by the absence of the symptoms of tabes. Besides, in arthritis deformans the motion of the joint is restricted, while in arthropathia tabidorum the joint is usually abnormally movable.

In these cases the disability is great, especially late in the spinal disease when inco-ordination is added; but I have never seen a patient who could not walk with the aid of crutches or a cane. One of my cases has improved in his ability to walk owing to the fact that his knee, the seat of the disease, has become ankylosed, and, though still greatly deformed, it is strong and gives him firm support. Six years ago, when I first saw him, mobility was so great that he walked with much difficulty. Knowing that in these cases fractures would unite, I was of the opinion that resection of the knee in this case would be justifiable, and that he would be much improved by the operation. Nature has accomplished all that I could have hoped to do by operating, and I now know that I might have failed in my object.

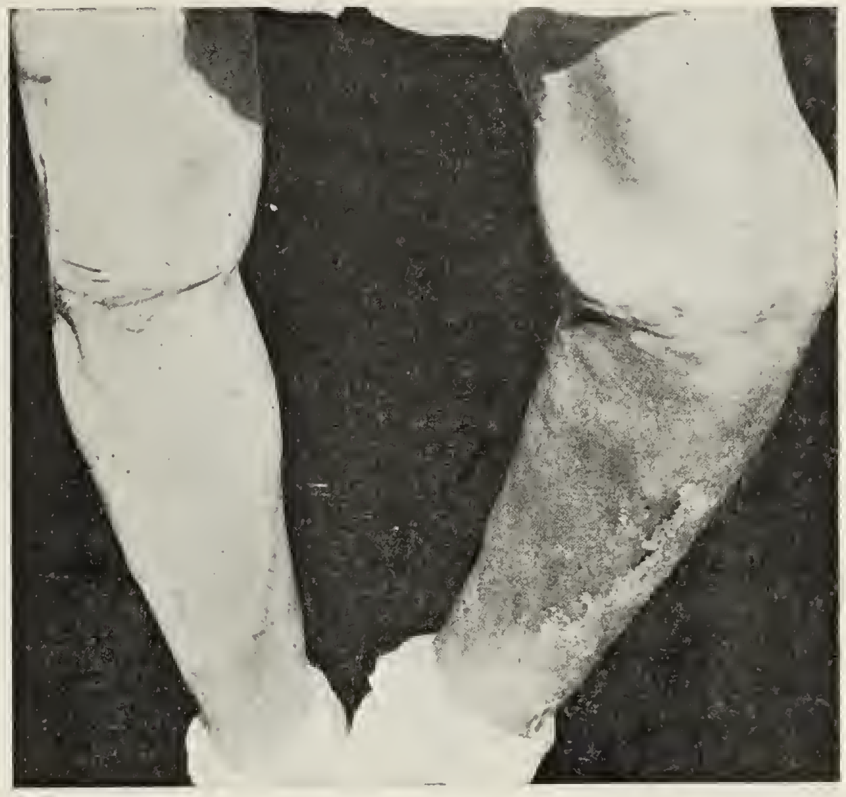
This week I saw a case of this disease in a knee joint in which resection had been done seven years ago by Dr. Willy Meyer, of this city. The final result shows that union of the bones had failed to take place; and, while the man can walk with a cane, the joint is not better than the average of these cases in which no operation has been done. As I am ignorant of the man's original condition I am unable to state whether the operation was an advantage or not.

Beyond the use of splints in those cases where mobility is great, very little can be done in the way of treatment. The disease is permanent, and the patient I have referred to is the only one of my acquaintance who has improved. Further experience may show that resection is advisable. Notwithstanding the case above referred to, I am still of the opinion that we may expect union to take place after resection. If this is true, the operation would often afford great relief.

I have had no reason to change my conclusions as expressed six years ago. They are as follows: (1) That this is a peculiar disease depending on tabes dorsualis; (2) that it is due to trophic disturbance; (3) that it is of the nature of a degeneration, and not of an inflammation; (4) that syphilis is not a necessary factor of locomotor ataxia; (5) that in some cases excision of the diseased joint may be justifiable.

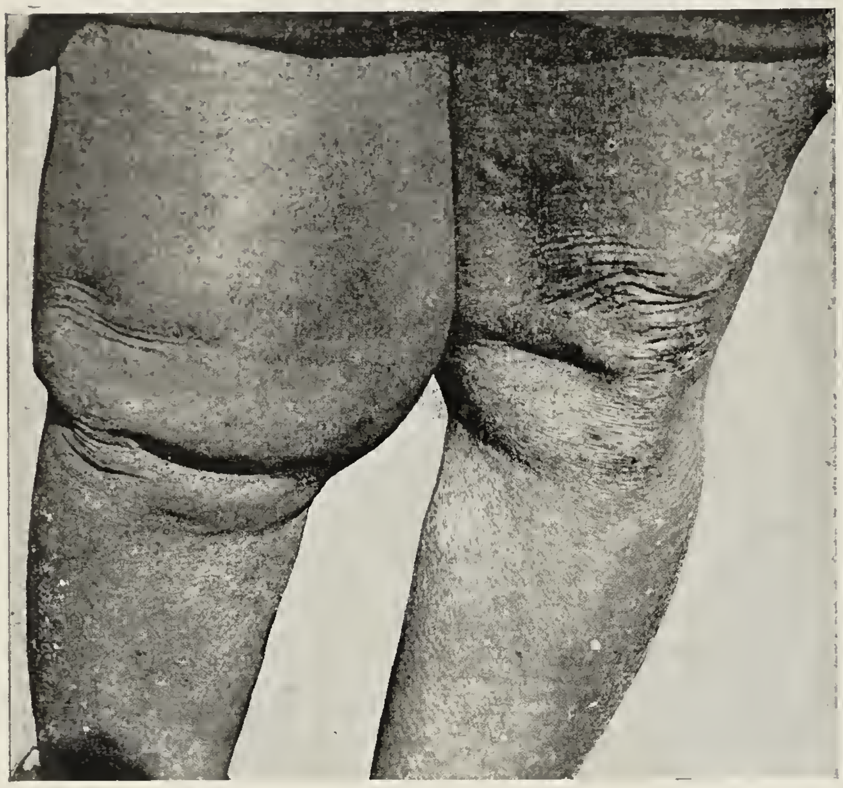
The following is the history of two typical cases which I take pleasure in showing you:

Case I.—Henry B., sixty-two years of age, a sea cook by occupation. No history of syphilis and no evidence of syphilis. When six years of age was kicked by a horse, probably receiving a fracture of the right parietal bone. He says he was unconscious for six days, and that he bled a good deal; does not know if from ear or nose. There was no resulting paralysis of speech or motion. Since this accident he has been deaf in the right ear. His subsequent history is negative till 1883. At that time, after taking a bath and exposing himself to cold, he suddenly developed what he calls a weakness in his legs. His gait was unsteady, and he was thought to be intoxicated. Soon he lost to a marked degree the natural sensation in his legs and feet; they felt numb and as though he walked on an uneven, spongy surface. His symptoms have always been more marked on the left than on the right side. There was very little change in his condition till about the middle of the year 1887. At that time his knee swelled to more than its present size within a week. It attained its present deformity within a month. The joint was very movable in all directions. When he stood it took a position of extreme adduction. When I first saw him, in the latter part of 1887, there was a peculiar hard swelling of the entire limb. There was a large, imperfectly movable mass below the middle of the thigh. This later became reduced in size, and ossified on the shaft of the femur. Examination five months after the attack of general swelling of the thigh showed anæsthesia, deep and superficial, of both limbs; sensation not delayed; patellar reflex absent; pupils do not respond to light; patient sways when standing or walking with closed eyes; left knee very much enlarged and deformed, measuring ten centimetres more than the right knee. There was some increase in the size of the entire limb; there was fluid in the joint cavity, marked crepitus on motion; lateral mobility greatly increased; general contour of joint lost, owing to thickening of the capsule; internal capsule greatly hypertrophied. There was also a spine of bone, ten centimetres long, on the inner side of the lower end of the shaft of the femur.


Case I.

Examination on October 8, 1894, showed the left knee joint very much enlarged and deformed, measuring ten centimetres more than the right knee, over the patella; the knee was ankylosed; the position of leg was not one of normal extension, but adduction, causing a marked bow. Owing to the ankylosis, the limb gave a firm support, and the patient was able to walk quite well.

Case II.—Laura H., admitted to the Colored Hospital on March 21, 1894; fifty-four years of age. Evidence of old syphilis, but no history of the same. The present illness began in the early part of 1892, with numbness in both feet. In the fall of 1892 she began to have shooting pains in calves of legs. About December, 1892, her right knee became swollen and caused her some pain. There were present the Argyll-Robertson pupil and loss of patellar reflex; sensation in the legs was delayed, and was also diminished; she swayed when standing with closed eyes. The right knee was greatly deformed and enlarged; the patella was firmly fixed to the femur; the lower end of the femur was greatly hypertrophied, especially at the inner condyle. The ligaments and capsule were much distended and stretched. The upper end of the tibia was somewhat atrophied, and was subluxated backward and outward. There was flexion to more than ninety degrees; extension to more than a straight line; abduction to about a right angle; adduction to about forty-five degrees. The right knee measured seven centimetres more than the left at the greatest circumference. The disability was great.



CASE II.

PAPILLOMA OF THE TONSILS.*

By H. T. MACHELL, M. D.,

TORONTO, CANADA.

MAGGIE S., aged ten years, entered the Hospital for Sick Children here on the 4th of May, 1892, complaining of her throat. Her mother, who brought her from Collingwood, gave the following history:

At eight years of age she (*i. e.*, her mother) noticed the enlarged tonsils accidentally one day when the child was crying from toothache. They were then quite large. Since then they have gradually increased in size. There have been no acute attacks of any throat trouble during either of these years. And yet the mother remembers that when the child was two or three years of age she had several attacks of so-called "acute sore throat." This tendency to sore throat disappeared after she was about four years old.

When she was about seven years of age her mother was told by her physician that she had goître.

Within the last year her facial expression has changed somewhat; she appears duller and more listless and is slightly deaf. Her voice is changed, and she speaks as if she had a hot potato in her mouth. There is also considerable difficulty in swallowing. Her general health is fairly good.

Her mother reminded me of the fact that she had been under my care in the old hospital six years ago. At that time she came in for a lipomatous tumor of the side of the neck just above the clavicle and shoulder, and which I removed after cautious and deep dissection. The wound was a large one, requiring some sixty or seventy sutures. From this she made a good recovery, and now only an indistinct scar marks the site of a former large wound.

Present Condition.—Well-marked enlargement of either lobe of the thyreoid gland, excessive enlargement of both tonsils, which are studded with closely packed papillary bodies, and, as a consequence, difficulty in swallowing, deafness, alteration in the voice, and also in the expression.

The tonsils literally filled the throat. One could scarcely believe that any food could be forced past them, so large were they, and so completely did they obstruct the fauces. They were rough and ragged in appearance at first glance. On closer inspection, however, the rough appearance was seen to be made up of numberless papillæ or pedunculated masses, packed closely together and extending downward as far as one could see or feel with the finger. They also bulged so far forward as to hide the uvula completely and rest on the base of the tongue. There was very little sensation in them, and, bulging as far forward as they did, there was no difficulty in palpating them. Each papilloma seemed to have a separate and distinct entity. Some had a very small pedicle, others larger, but none sessile. So large and so closely packed were these papillæ that one could not help wondering at her being able to swallow at all. While she could swallow fluids if taken very slowly, there was always difficulty in the deglutition of solids. The solid particles appeared to get tangled up in the papillæ and would only pass on down after repeated efforts at swallowing. With such masses in her throat it is not to be wondered at that there was some difficulty in hearing and speaking. The change in her facial expression was, I suppose, due to her deafness and constantly keeping her mouth open.

The tonsils were so utterly unlike anything I ever saw before that I delayed doing anything whatever for her in order to allow all the members of the staff and several other medical friends to see her at their leisure. The *size*, as well as the *appearance*, was something *unique*. In fact, the case was a "*rara avis*" to each and every one of us who saw her.

That a better idea of the size and appearance of the tonsils might be formed, I asked the photographer to the hospital (a professional) to photograph them. He made a number of attempts to do so, both at the hospital and at his studio, but without any success whatever. Knowing that our former president, Dr. Powell, was very much interested in amateur photography, and knowing also that amateurs in photography, as in everything else, like to get hold of something which is considered "difficult" by ordinary mortals, I asked him if he would try to secure a view of her tonsils. After a great deal of trouble and several "sittings" he managed, with the aid of the magnesium flash light, to get a photograph of the upper and anterior surfaces of the tonsils. This I now show you. Your imagination will enable you to form an idea of what the whole size and appearance must have been.

Shortly after Dr. Powell's getting the photograph of the tonsils and before any treatment was adopted, the patient was taken ill and died within forty-eight hours. Both scarlatina and diphtheria had been introduced into the hospital a few weeks before this by children or friends coming to visit the little patients, and several cases of each disease had been sent up to the isolation wards a few days before this.

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* Read before the Toronto Medical Society, October, 1894.

Almost the earliest symptom she complained of was "sore throat." As soon as seen by the house physician her throat was examined, and all the papillary growths and the few intervening spaces were seen to be acutely inflamed and covered with a grayish-white membrane very suggestive of diphtheria. The membrane, though, looked thinner than the typical diphtheritic membrane even in its initial stage, and yet it could not be peeled off without using undue force. The uvula could not be seen, neither could the pillars of the fauces nor the soft palate, all being hidden by the tonsillar outgrowths. The discomfort and pain in swallowing were increased. The disease was not ushered in by a chill, a convulsion, or by vomiting. There was no rash. The submaxillary and cervical glands were somewhat enlarged and tender to the touch. Her temperature ran up to 102·5° and the pulse was increased to 120 to 130 The countenance was indicative of serious illness. The patient looked more seriously ill than is usual with follicular inflammation of the tonsils; besides, one glance at the tonsils and the uniform and complete character of the membrane showed us that we had to do with something more than follicular tonsillitis.

At this early stage the diagnosis lay between diphtheria and scarlatina, with a leaning toward the former. Both diseases had found their way into the ward occupied by the patient. As the mother lived out of the city we could not consult her as to whether the patient had ever had scarlatina. It was necessarily a case of waiting for more data on which to form a diagnosis.

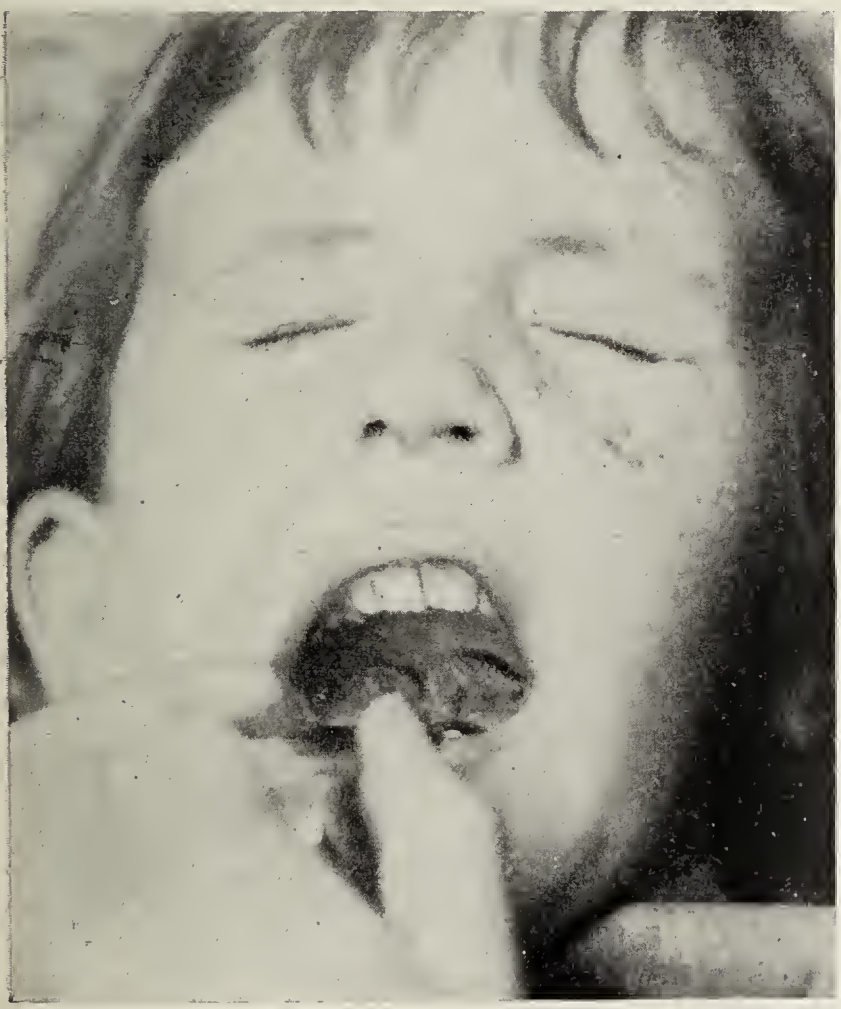

Fig. 1.

Within twenty-four hours a typical scarlatina rash appeared. Time thus helped us out of the difficulty in regard to the diagnosis, as it does almost every day in the year.

But with such masses in her throat and such an acute attack the poor girl's chances were almost *nil* from the invasion of the disease.

Toward the end of the second day of the attack several of the staff saw the case with me, and while we were out in the corridor discussing it and our helplessness in such cases, the nurse came out to say the patient had just died. It was thought then, as we had been cheated out of an operation and thereby prevented from getting the tonsils, we had better secure one now. Accordingly, with my forefinger I enucleated her left tonsil without any difficulty whatever. And again through the kindness of Dr. Powell I am able to give you an idea of its appearance on paper, slightly enlarged.

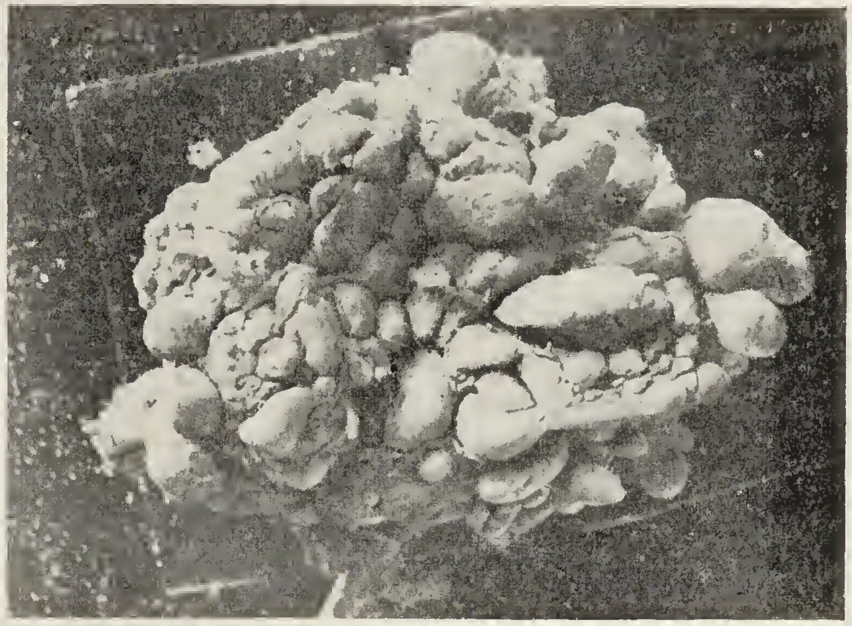

Fig. 2.

I also show you the tonsil itself, very much shrunken, of course, from its immersion in alcohol for more than two years.

Dr. John Caven has examined a portion of the tonsil microscopically and reports as follows:

Microscopic examination of the tissue shows it to be lymphadenoid in nature. Unfortunately, improper hardening and preservation has so deteriorated the structure as to render sections very unsatisfactory. However, it is really a true hypertrophy of tonsil, tonsillar tissue being reproduced. Whether congenital or not I can not determine. I have not been able to find a reference to an exactly similar condition in any work; the nearest to it is a papillomatous condition of the mucosa of the pharynx resulting from chronic pharyngitis. I would compare it with post-nasal adenoids. J. C.

My first impression on seeing the tonsils when she entered the hospital was that it would be a good case for the use of the amygdalotome, but I think now, from the ease with which I enucleated the one, that in similar conditions, or in cases of very large tonsils, enucleation would be preferable and probably quicker. There was no difficulty in shelling it out with the forefinger and finger-nail, and I was a very little longer time in doing it than is ordinarily taken in performing amygdalotomy. In enucleation, one could be certain that the stump would give no future trouble—a result which can not always be promised after amygdalotomy.

The Jarvis snare might have been used, and from the large size of the tonsils and the consequent difficulty in getting the tonsils in the ring of the amygdalotome, I think the snare would probably have answered the purpose better than the ordinary amygdalotome. Even with the largest-sized amygdalotome, and taking ample time over it, I am positive the whole of the tonsil and its outgrowths could not have been drawn through the ring. Therefore it would have been necessary to introduce the amygdalotome two or probably three times before getting away the whole of it. In this way longer time would have been consumed than with enucleation.

That these papillomatous tumors of the tonsils are *very rare* I am convinced from a careful search of all the modern works on pathology at present in our library here. They are not even spoken of in any one of them; nor is there any mention made of them in any of the works devoted especially to diseases of the throat. What is yet more surprising, no reference is made to such a condition in the *Index-Catalogue of the Library of the Surgeon General's Office of the United States Army*, a work which contains a reference to almost everything published for half a century past.

Some of the interesting points in connection with this patient—

1. The presence of a *lipoma of the neck* at four years of age and its difficult removal.
2. *Goître* at seven years.
3. Papilloma of the tonsils first noticed when she was eight years old—that is, at least two years before entering the hospital. Thus showing their *slow growth.*
4. The difficulty experienced in *photographing* the tonsils.
5. The *impossibility* of making a diagnosis between *scarlatina and diphtheria* in the very early stage of her acute illness.
6. The ease with which *enucleation* was done just after death.
7. The *extreme rarity* of papilloma of the tonsils.

FIVE LARGE LIVERS.

NOTES OF A SERIES OF CASES IN WHICH HYPERTROPHY OF THE LIVER WAS A PROMINENT SYMPTOM.

By ERNEST F. KING, A. M., M. D.,
WASHINGTON, D. C.

The following cases came under my observation at the Freedmen's Hospital during the spring and summer of 1894:

CASE I. *Hypertrophy following Obstructive Jaundice due to Cancer of the Pancreas.*—Peter C., a native of Ireland, fifty-eight years of age, drawing a pension for "heart disease, rheumatism, and incomplete inguinal hernia," presented himself at my clinic October 13, 1893. General jaundice and severe pains in the right upper quadrant of the abdomen, with nausea and vomiting, were complained of. The liver was enlarged, especially the left lobe. Gall bladder was not made out. There was no ascites, and superficial veins of the abdomen were not enlarged. Urine was heavily charged with bile pigment; stools were clayey. The condition had begun about three weeks previously.

A diagnosis of catarrhal jaundice was made, and under treatment there was apparent improvement, the skin clearing somewhat, and the pain and vomiting leaving. Early in December he returned, however, with a much deeper color. Examination showed a tumor pressing against the abdominal wall above and to the right of the umbilicus, and moving freely with each respiration. The edge of the liver could be felt just above it.

Here was plainly a case of obstructive jaundice, and an operation was advised. A visit to friends in the country kept him away from the clinic until December 29th, when he said he was ready for an operation, and entered the hospital for that purpose.

Circumstances beyond my control prevented an operation before February 2d. During the month in the hospital the tumor increased in size, the jaundice became more intense, and strength less. The morning before the operation he had a stool, described by the nurse as appearing like "fine chipped beef that had grown black." I operated at noon, removed seven hundred and twenty cubic centimetres of bile from the gall bladder by aspiration, and did a cholecystenterostomy with the Murphy button. The cause of the obstruction could not be made out. Much time was lost in checking the hæmorrhage from the abdominal walls. The following morning there was some bronchitis, with bloody expectoration. The third day he had a bloody stool. He sank gradually, and died at 4.10 A. M., February 6th, eighty-seven hours after operation.

Necropsy showed both wounds in good condition. Stomach, gall bladder, and intestines were filled with a blood clot so soft that it would run through the fingers. A slight firmness about the head of the pancreas seemed to be the only cause for obstruction, and it required a microscopical examination, showing carcinoma, to settle the matter. Cholæmic hæmorrhage is given as the cause of death after a number of operations on record. While the jaundice in this case contraindicated an operation, there seemed to be no other means of possible relief. Weight of liver, seven pounds.

CASE II. *Amyloid Disease following Tuberculosis.*—William B., mulatto, aged thirty-eight years, cook, entered the hospital on January 14, 1894. For two years he had been troubled with swollen feet and legs, with ascites during the second year. An enlargement of the liver had been noticed for a year. He was much emaciated. Liver extended halfway to the umbilicus. Abdomen tender. Caput medusæ at navel. Urine albuminous. Lungs dull at apices. No cough nor expectoration. No history of suppuration. Syphilis denied. Fingers clubbed. He was brought to the hospital in a sinking condition, but lived nearly a month. Necropsy showed an amyloid liver weighing six pounds and a half; kidney also amyloid; lungs studded with gray tubercle.

CASE III. *Carcinoma.*—This case has already been reported in a footnote to Dr. William Osler's lecture on Tumors of the Liver, published in the *New York Medical Journal*, April 7, 1894. Dr. Osler's note is as follows:

"A case illustrating an error in diagnosis is that of hospital number 5234, Joshua M., aged fifty-four, admitted May 16, 1892, with swelling of the abdomen and an illness of nearly a year's duration. The patient was a large, powerfully built man; had always enjoyed good health, and denied venereal disease. For nearly a year he had had trouble in the abdomen, and had twice been slightly jaundiced. The legs had been swollen, and he had had shortness of breath. The examination showed an enormously enlarged liver. The whole of the upper part of the abdomen was filled with a hard, irregular, nodular mass, corresponding to the greatly enlarged liver. The lower border was felt midway between the umbilicus and the pubes. There were prominent bosses on the surface of the liver, and from its great size and irregularity there seemed to be no question as to the correctness of the diagnosis of secondary cancer of the organ. No primary disease could be determined, and there was decided hyperacidity of the gastric juice. The patient remained in the hospital for a month and gained slightly in weight, but the liver developed still further, and the irregularity on the surface was more marked. An aspirator needle was thrust in, but nothing but blood obtained. Naturally enough the diagnosis was entered as cancer of the liver. Dr. E. F. King, of Washington, under date of February 10, 1894, writes that he has Joshua M. under his care at present. He has a well-marked syphilitic skin eruption, and the liver, still enlarged, extends nearly to the pelvis. The time element in this case, I should think, definitely excludes cancer, while the syphilitic rash on the skin is suggestive in the highest degree that the whole trouble is specific."

Liver of Joshua M. Weight, twenty-nine and a quarter pounds.

Joshua M. died on the fourth day after the appearance of this note, and the necropsy proved the original diagnosis to have been correct. The cancerous mass removed weighed twenty-nine pounds and a quarter. A plaster cast may be seen at the United States Army Medical Museum.

Case IV. *Cirrhosis with Enlargement.*—William B., colored, aged thirty-seven years, was admitted to the hospital after a long debauch. For years he had been a hard drinker. Jaundice marked. Epistaxis controlled with difficulty. Death in thirty-six hours after admission. Liver cirrhotic, weighing six pounds. Stomach, gall bladder, and intestines contained soft blood clots.

Case V. *Sarcoma.*—James Y., colored, aged twenty-two years, admitted to the hospital May 15, 1894. Right testicle four by three inches, hard. This condition had begun in childhood.

About six weeks previous to admission pain had been felt in the abdomen and a lump noticed just below the ribs on the right side. Examination showed a marked conical eminence to the right of the middle line of the abdomen just above the umbilicus, with the edge of the liver perceptible below. A poorly defined growth could be made out in the lower left quadrant. Pain was constant but not severe. There was no rise of temperature. Bowels not obstructed. Tumor grew rapidly.

An exploratory incision was made May 29th by Dr. Robert Reyburn, and the malignancy of the growth was evident at once as the soft mass from the liver oozed through the first opening in the peritonæum. The wound was closed, and the patient lived four days. The testicle showed sarcoma, evidently the disease to which the deposits in the six-pound liver were secondary.

SUTURE OF THE TORN CERVIX UTERI IMMEDIATELY AFTER LABOR.*

By WILLIAM R. PRYOR, M. D.,

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Severe and alarming hæmorrhage from the cervix may follow from a deep cervical tear and will demand checking by suture or by ligature *en masse.* None will dispute that. Such a laceration of tissue takes on the characteristics of an extraperitoneal rupture of the uterus, and any operation performed to check such bleeding from the uterine artery and its branches should not strictly be called a trachelorrhaphy. The separation of tissue here is important because of the hæmorrhage only.

We are further to consider whether any other indication post partum may demand immediate closure of a torn cervix.

It is maintained that post-partum hæmorrhage from the corpus is prone to occur with severe and fresh tears, due to lack of contractile power in the uterine muscle. A pregnant woman has an hypertrophied or rigid cervix, and, as is usual with such, a weak uterine muscle also. The first stage of her labor is tedious and the cervix is subjected to much pressure. Suddenly it yields by tearing. Post-partum bleeding from the fundus follows. The mere fact of a cervical tear does not produce this; but it is due to a bleeding from the cervix robbing the uterine muscle of blood, or else and more often it is the result of fatigue of the uterine muscle and paralysis of the cervical ganglia upon whose influence depends largely the contraction of the uterus. Furthermore, women who have old and very pronounced lacerations are less prone, in my experience, to post-partum hæmorrhage after subsequent labors than those with intact cervices. Their uteri have less work to do to expel their contents, and have abundant reserve strength to properly contract post partum. Again, post-partum bleeding is not a feature of labors completed by means of Dührssen's incisions, whether these are immediately closed or not. It is the hæmorrhage from the uterine artery, the long-continued pressure acting upon the cervical ganglia, the over-effort on the part of the corporeal muscle which produce the post-partum hæmorrhage, and not the subtle effect of any separation of cervical tissues.

Another immediate result of laceration of the cervix is said to be subinvolution. A careful analysis of all the cases of subinvolution I have met with, associated with laceration of the cervix, convinces me that this retarded involution results from other causes, more especially from the character of the labor, than from any influence of the torn cervix. Certainly in my experience it is more common to find it occurring after first labors than in women who are multiparous and who have torn cervices.

I must ask the fellows to remember that at each uterine contraction the corpus is deprived of blood circulation. This persisting through an obstructed labor, and probably followed by much loss of blood, are the causes predisposing to subinvolution. The causes of subinvolution are entirely apart from those of laceration of the cervix. One argument advanced is that when the cervix is torn the uterine muscle has nothing to hold on to in trying to contract. If there were no opposing sphincter cervix whatever, contraction of the corporeal muscle would probably be complete, as is noticed with other involuntary muscles when the opposing structure is removed. They enter into a condition of tonic contraction. I must qualify this statement, as to a lack of influence of laceration here by excepting cases which I consider as pathological laceration.

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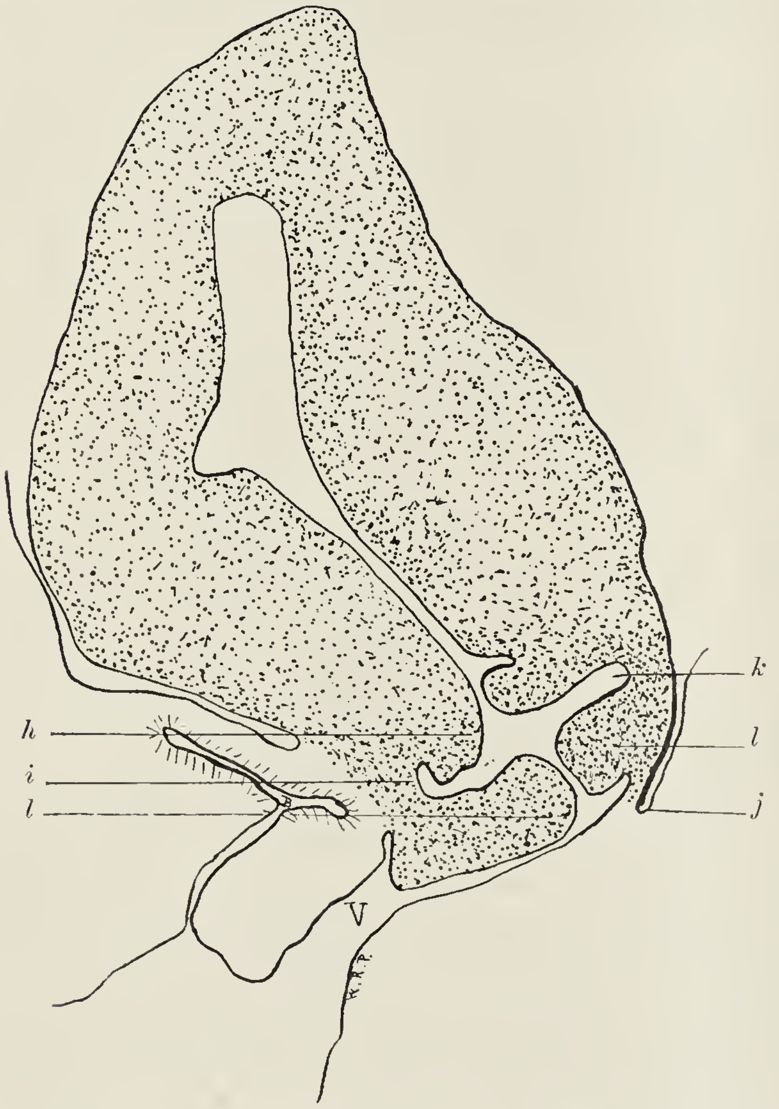
* Read before the Society of Alumni of Bellevue Hospital, November 7, 1894.

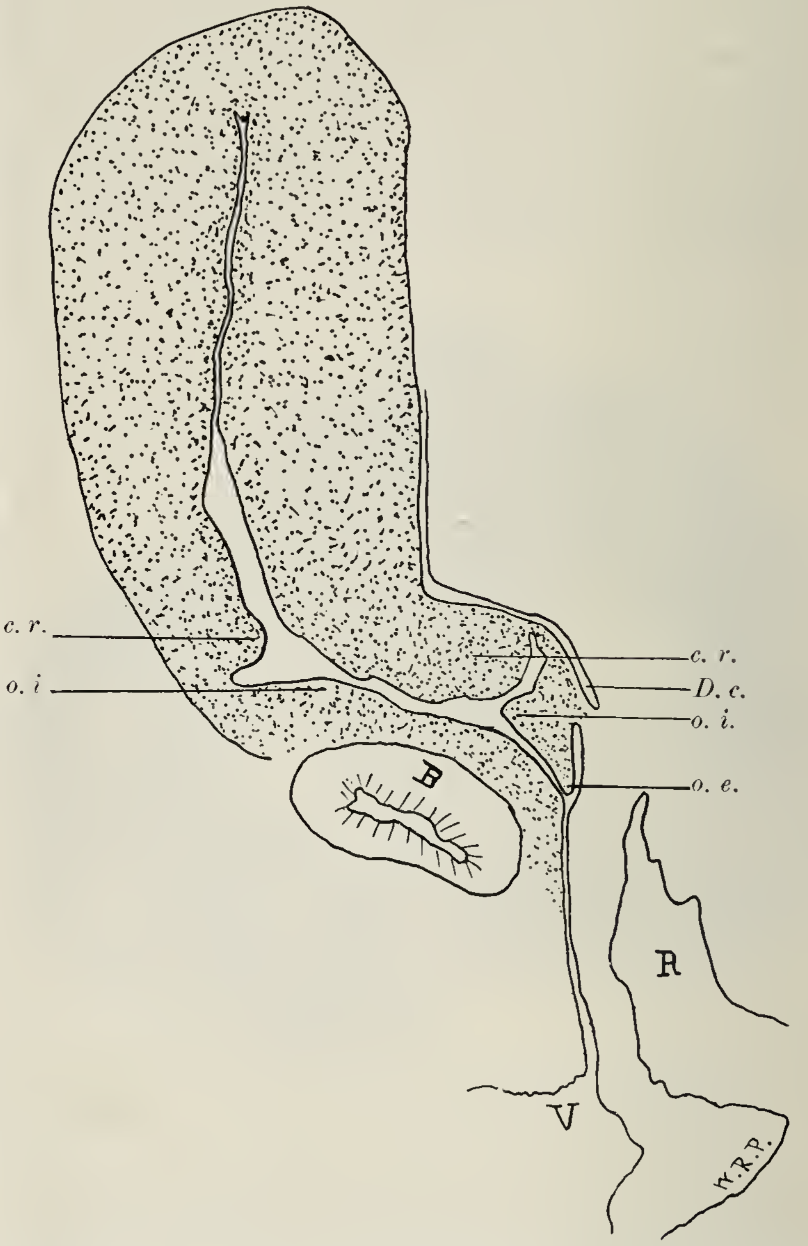
A pathological laceration is one which implicates the internal os. This at term is but part of the lower segment of the uterus. Laceration of this point constitutes a true extraperitoneal rupture of the uterus.

The liability of an open torn cervix to become infected is a question difficult of solution. If the confinement has been, surgically, a clean one, infection can not occur. To operate in such a case is to introduce into the genital tract instruments and material which may not be clean—is to interfere with a perfectly healthy and clean surface for, perhaps I may say, sentiment.

If the accouchement has been filthy, still less right have we to lock up in that uterus the lochial discharge. It is in those doubtful cases—cases of which we are not sure—that the freest drainage is demanded, that the most unrestrained escape of discharges must be secured. Certainly the open cervices of Dührssen's incisions do not become infected. They are clean. No such condition of gaping, everted lips eager to take up sepsis as the speculum reveals actually exists in the undisturbed relations of the parts.



Frozen section. Death five minutes after delivery. *h*, retraction ring; *k*, cavity of uterus above cervix; *i*, lower uterine segment; *j*, Douglas's *cul-de-sac*; *l*, cervix. The os internum and os externum can not be defined accurately. (From Webster.)



Frozen section. Death one hour after delivery. *c. r.*, contraction ring; *o. i.*, os internum; *o. e.*, os externum; *D. c.*, Douglas's *cul-de-sac*; *B.*, bladder; *R*, rectum; *V*, Vagina. (Stratz.)

A critical examination of the frozen sections of post-partum cases fails to show such separation of the torn cervical lips as those who so earnestly advocate trachelorrhaphy picture. The two forces, atmospheric pressure and intra-abdominal pressure, very sufficiently and properly bring such torn cervical lips into apposition. A carefully made vaginal examination will prove the same relation of the parts to exist. Thus it is that the immediate separation revealed by the speculum by no means measures what will ultimately result. I must confess my inability to determine exactly what parts of the structure exposed by the speculum immediately after labor shall be united by suturing. A portion of the cervical tissues has become apparently part of the vagina, and another portion has been drawn up to form part of the lower segment of the uterus. If I had not the indication of bleeding and had to be guided solely by the appearance of the lacerated and bruised tissues for the limitations of my suturing, I should unite either too much or too little. I believe it to be utterly impossible in many cases immediately after labor to determine accurately how much will prove cervix when involution has become complete and how much will be lower uterine segment or vagina.

The anatomical relations are so disturbed by the merging of uterine and vaginal canals into one parturient tract that absolute definition is impossible. In some cases the limitations of tissue are perfectly plain. The confusion in structures is very well shown in the two cuts submitted.

It is the author's belief that there is but one indication for immediate repair of the torn cervix—hæmorrhage.

To apply the procedure in all cases where even marked separation of the cervical lips appears to exist is to introduce into obstetrics one more interfering, meddlesome, routine operation for which there is absolutely no reason; is to add more chance for infection where already too many are presented by the aggressiveness of modern obstetrics, and, above all, it undoes what Nature at great pains and beneficently has accomplished, and which we imitate by Dührssen's incisions—viz., a provision for the free escape of the lochia. I must not be understood as stating that the large everted flaps of cervical tissue which we so often see some months after labor are natural. They are certainly abnormal, but the abnormity existed before the woman ever conceived, has been increased by pregnancy, and does not demand suture, but just that operation to which she should have been subjected before conception.

The objection is to suturing at the time of labor such tears as are now subjected to trachelorrhaphy some time afterward. Unquestionably to do this will put the cervix into that state in which it was before labor, and will subject the woman to the same risks from subsequent confinements as attended the first. It is far better to allow the separation of cervical tissue to remain to be dealt with later, and to do such operation upon the cervix secondarily as will render any subsequent confinement more normal. Any degree of bleeding which can not readily be controlled by iodoform-gauze pressure within the cervical canal and vagina will, of course, demand suture. But tears which appear severe immediately after labor and yet are not accompanied by hæmorrhage, will, after involution has taken place, result in no more than a conservative separation. Severe lacerations usually take place in cervices the intravaginal portions of which are much hypertrophied. Unless such tears produce a bleeding demanding a controlling suture, it is preferable to delay the amputation or amputating trachelorrhaphy until after the puerperium. I shall certainly not suture together at the time of labor tissues which should really be removed. Inasmuch as the vascular area about the internal os has been drawn up into the lower uterine segment, the tears of labor do not often produce much bleeding. It is the lower ring of the cervical tissue which tears, and this is not commonly very vascular.

A certain slight degree of tear is physiological, just as rupture of the fourchette is, and only this physiological nicking will occur in young mothers. But when a woman bears a child with a deformed and abnormal uterus, it is not the duty of the obstetrician to return it to its first distorted state, but to correct the abnormity in order that subsequent labors may be more nearly natural. The greater the degree of cervical hypertrophy the more the necessity for a free drainage after labor, and the indication for immediate suture is wanting.

DR. ROUX AND HIS SERUM THERAPY IN FRANCE.

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The serum therapy in its slow and careful presentation, although following so closely after the exaggerations and disappointments of Koch's tuberculin, has been from the very first almost conclusive. Its true value, however, and the full extent to which the benefits of this discovery will reach, can not as yet be said, from a scientific point of view, to be definitely established. Meanwhile few historical events in Europe have made a deeper impression in the popular mind than the announcement of this victory over the Klebs-Loeffler bacillus. And the two men whose names have become synonymous with it—Behring in Germany, Roux in France—are currently referred to in terms of national gratitude and enthusiasm.

That the feelings of the masses should express themselves more abundantly in France than in Germany is only natural, owing to the different temperament of the two peoples; and, as a matter of fact, the French have neglected no opportunity of showing their sense of appreciation in a most characteristic way.

About three months ago, for instance, the *Figaro*, one of the leading Paris newspapers, published an interview with Dr. Roux, in which, among other things, he expressed a regret at the limited revenue of the Pasteur Institute. As there were no other resources for preparing the serum, many pressing demands, he said, had necessarily to be refused. That same day the *Figaro* threw open its columns for a popular subscription, fixing the sum of its expectations at a hundred thousand francs (twenty thousand dollars). Before the end of two months, more than ten thousand subscribers had responded to the appeal—mothers, children, grandparents, men and women of all classes—each sending his little offering, if only a franc. The total having then exceeded five hundred thousand francs (a hundred thousand dollars), the *Figaro* closed its columns; but subscriptions have ever since been steadily pouring in. In addition to the sums of money a number of chosen horses were sent to be inoculated for the general good—ponies with pet names, coach horses, and three or four full-blooded racers well known on the turf.

Another indication of the popular sentiment can be gathered from the three great benefit performances given in Paris a few weeks ago. The first was organized by the students of the university, who were allowed to use the National Theatre of the Odéon; the second was given at the Gaieté through the efforts of the Parisian shopkeepers; while the third was volunteered by the director of the Ambigu in the name of the mothers of France. The most prominent comedians offered their services gratuitously at all three performances. The president of the republic, Casimir Périer, also honored them with his presence, together with his prime minister and members of the cabinet. At the same time the government granted a subsidy, and various amounts have been voted by little town corporations even in the remotest corners of the country.

All this money has been put at the disposal of Dr. Roux, to be used at his discretion for extending the benefits of the new diphtheria treatment. The preparation of the serum for the use of the entire nation, as well as the details of its distribution and application, has been placed under his control, he himself having expressed certain apprehensions at extending the delicate responsibility to individual enterprise.

Only a few months ago the name of Roux was still little known to the general public, except for his position as chief assistant at the Pasteur Institute, where the active work of investigation had gradually devolved upon him owing to the advanced age of his master. In the medical world he was recognized as an original and patient thinker, the author of several articles on questions of bacteriology, and especially worthy of scientific esteem for his discovery of the diphtheritic toxine.

In the light of his present renown, the personality of Dr. Roux by its extreme simplicity and modesty offers a subject worthy of closer observation. During the past year I have had an excellent opportunity of being impressed by it, my good fortune having brought me for a number of months into his daily presence, thus enabling me to see him in most interesting and exceptional moments. I was then one of a small number of doctors particularly interested in the work of the Pasteur Institute, who assembled before him to follow his unpretentious course on bacteriology. The nominal subject of the course was interrupted from time to time by Dr. Roux, and on such occasions the talks became a sort of familiar commentary on the general work of investigation actually going on at the institute. The chief interest at that time was soon seen to be concentrated on questions relating to diphtheria.

It was in the largest of Dr. Roux's own laboratories that the course was being given. The air of peaceful quiet of the distant corner of Paris where the Pasteur Institute stands is still more intensified as you go up the silent stairways and enter the right wing on the second floor. There, at the end of the hallway, is a dingy door bearing the words, "Microbie Technique." This opens into the main portion of the laboratory. Large and numerous windows admit floods of sunlight and fresh air, and strewn about on all sides in apparent confusion are sterilizing apparatus, *étuves* for cultivating bacteria, rabbits, birds, guinea-pigs, rats, mice, all sorts of inoculated animals awaiting autopsy, with an almost infinite number of small test tubes containing a collection of all the microbes known up to the present day.

Here in this room, nine months ago, every afternoon at half past one o'clock were assembled about twenty doctors, young and middle-aged men, waiting with quiet, concentrated faces the appearance of Dr. Roux.

Promptly at the appointed hour a small door opens at the side and in glides a tall, slim figure. No sound greets his entrance as with long strides he advances quickly to the center of the room, where, without preliminary remarks or formalities of any kind, he begins in a natural and modest voice to discuss the subject under consideration.

His presence as he stands there is peculiarly interesting. The careless simplicity of his black attire is emphasized by a queer-looking parson's vest which extends up, tightly buttoned, to the middle of his white collar, leaving no room for a necktie. The apparent indifference to exterior effect is moreover confirmed by the clumsy rubber galoches which he invariably wears, notwithstanding the popular French prejudice against their grotesqueness. The hair, like the thin, pointed beard, is black, and cropped all over as close as the barber's shears will permit, and covered at the crown with a tightly fitting little skullcap, also black.

The face is careworn and weary, colorless, almost sickly, in its aspect, with eyes pale and dim, though full of tenderness and sympathy. He produces the impression of a man still young, a man of forty.

A few quiet words and all thoughts of his physical peculiarities are quickly forgotten. With hushed attention the listeners are all absorbed, impressed by the magnetism of an earnest, powerful mind searching with conviction for the truth.

From time to time, as we were assembled in the laboratory as usual, Dr. Roux put aside the previously commenced subject to inform us of the investigations that he was making in reference to diphtheria. We listened to his simple explanations in these eventful moments, little realizing that new and great principles were declaring themselves, and that these, together with what was being done in Germany, would complete a discovery which with its incalculable benefits would so soon agitate the world.

The center of the new experiments, Dr. Roux explained to us, was a horse. Into this animal had been injected at long intervals during a number of months considerable quantities of the toxine produced in the laboratories by the cultures of the Klebs-Loeffler bacillus.

A number of smaller animals, as the doctor proceeded, were brought before us. These animals had been given the disease by inoculation, then subsequently had received injections from serum prepared from the blood of this horse. Instead of dying of diphtheria, as had hitherto been customary, nearly all had recovered as a result of the injections and were actually enjoying the best of health.

The experiments were to be repeated, and Dr. Roux stated in conclusion that, if the results were verified and confirmed, as he hoped, the treatment would be immediately applied to diphtheritic children.

As he ended this announcement and retired quickly through the door at the side, the little group remained in its attitude of attentive silence. He disappeared as he had come, without a sound of applause, while the seriousness of his words impressed and prolonged itself in the minds of his hearers.

How fragile and exhausted he looked as he hastened out of the room to push on with restless enthusiasm the work in his private laboratory—morning, noon, and night, week days and Sundays alike, without a thought of recreation, nothing but ceaseless, unremitting work! And often with anxious eyes we followed his disappearance, fearful that something would happen to him, that overstrain might impose a serious interruption to that precious mind with its many problems still unsolved. And each following day at half past one a thankful sense of relief came over us as the little door again opened punctually to admit the same dark, slim figure with its pale, delicate face that seemed almost pathetic.

The work is now accomplished, the experiments have been repeated and verified, the treatment has been applied to diphtheritic children. In September Dr. Roux read his report on three hundred and twenty cases treated in Paris at the congress at Budapest, and at once became a national hero. He has been elevated to the grade of commander in the Legion of Honor; large sums of money have been placed in his hands by the spontaneous impulse of the people and the official will of the government; published articles in France have ranked him among the eight or ten most celebrated men in the world.

Let us return once more to the Pasteur Institute to witness for ourselves the changes that have taken place there as a result of these unusual circumstances.

It lacks but a few minutes of half past one as we enter the hallway on the second floor and again approach the dingy door at the entrance of the familiar laboratory. The aspect of the room is indeed no longer the same. Instead of the serious little groups that our eyes had become accustomed to, we see a strange collection of humanity crowding the place to its utmost capacity.

A more diversified spectacle of costumes and faces could not well be seen in modern times. Russians, Roumanians, Canadians, Greeks, Japanese, Egyptians, masculine-looking women from Scandinavia or St. Petersburg, Turks in their red fezes, men of the north and the south, of the east and the west, whom the fame of the great discovery has reached in their distant homes and assembled here in this quiet laboratory to hear the words of Roux. Two priests, crowding in at the last minute, are obliged to stand with their backs to the sterilizing apparatus.

At half past one all eyes turn again toward the little door, which opens punctually on the minute. No apparent change has taken place in the dark, slim figure that glides in with accustomed quickness. The careless attire, the tightly buttoned vest, the clumsy galoches, and the black skullcap on the closely cropped head—all the same as before, with the single exception of a large red button resting on the lapel of his coat which marks a commander in the Legion of Honor.

The pale, earnest face is slightly older and is more careworn with its heavier responsibilities. Those familiar with Dr. Roux notice an almost imperceptible air of embarrassment that betrays itself in the presence of the too numerous and strangely anomalous audience. It is only for a minute, however; when once he has begun in his unassuming voice, all irrelevant circumstances are forgotten as before. He mentions incidentally the sixty-two horses now in the control of the Pasteur Institute that have taken the place of the single one of last winter; then the new and extensive improvements that were necessary for the increased production of serum. He also describes the duties of a number of thoroughly trained and skillful bacteriologists who are associated with him in this department, and to whom he intrusts many of the delicate details so important to secure a serum of the proper quality. He then speaks of the latest results obtained by the serum therapy in the diphtheritic pavilions of the two largest children's hospitals in Paris—the *Hôpital des enfants malades* and the *Hôpital Trousseau.*

The mortality has been steadily diminishing. This improvement seems to go hand in hand with the perfection in the methods of preparing and administering the serum, and with the increased facilities for the isolation of the cases complicated by broncho-pneumonia, scarlet fever, measles, etc.

The last two hundred and thirty-one cases treated at the *Hôpital Trousseau*, and reported December 13th by M. Moizard, showed only thirty-four deaths. He included in this list every child that had been admitted to the diphtheria pavilion, no matter how bad its condition had been on admission, and only those in whom the Klebs-Loeffler bacilli had been found. Of the last two hundred and sixty-seven patients treated at the *Hôpital des enfants malades*, in the service of MM. Bréton and Caillon, only twenty-seven died.

Now, after the close of his lecture, let us follow him into his private laboratory and there see one of the frequent interviews that await him. You can thus learn his real sentiments in the midst of his glory. Before an authorized visitor who addresses him with formal and complimentary language, a sort of trouble seems to come over him, a fear of not appearing sufficiently simple, of something in his manner that might be mistaken for pride. Then, as the conversation continues, he becomes visibly uncomfortable and impatient. He usually ends up by throwing off all appearances of conventionality to take refuge in the free and easy expressions of a medical student. The newspapers exasperate him with their noisy exaggerations, and his greatest desire would be to run away from the commotion to some spot where he could continue his work in peace. To be able to do this and to escape all official and unofficial congratulations, he would, I feel quite sure, without hesitation sacrifice his great scientific renown and his position in the Legion of Honor, and become once more a simple investigator unknown to all but his microbes. His only ambition apparently is to advance the field of scientific research, not for his own reputation, but for the glory of the Pasteur Institute and in hopes of discoveries that may relieve human suffering.

And, still, a month ago when I interrupted him to ask as a favor a little of his precious serum to take back to America, an expression of kindly sympathy lighted up his pale, careworn face, and with a friendly word for America he, in his own simple way, granted my request.

The North Carolina Medical Journal.—In the first number for 1895, dated January 5th, it is announced that henceforth the *Journal* will be published twice a month. We are glad to see this sign of its prosperity.

GASTRIC CONDITIONS IN RENAL DISEASE.*

By ALLEN A. JONES, M. D.,

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The kidneys may be the seat of considerable morbid change and yet possess the power of excretion that is essential for the welfare of the whole organism. On the other hand, the kidneys may be intact as to their structure and yet be so functionally sluggish that more or less uræmia results. As in a diseased heart, the question is not so much as to the exact deformity of the valves, but is more pertinently directed to the dynamic condition of the heart muscle, so in renal disease the inquiry as to the extent and nature of the organic lesion is subordinate to the determination of the excreting power of the organs.

In reference to the causative relation between renal disease and gastric disturbances, the point of greatest importance is not the nature of the inflammation or the change in the kidneys, but is one mainly bearing upon the elimination of urea and other poisons by these organs.

Chronic catarrhal gastritis is one disorder of the stomach that occasionally results from some chronic form of renal disease, as, for instance, interstitial or chronic diffuse nephritis. The mere fact, however, of the existence of disease of the kidneys is not of itself sufficient to account for the gastritis, as many cases of manifest renal disease do not have catarrhal gastritis. The blood-state resulting from imperfect elimination by way of the kidneys disturbs the innervation and the circulation of the stomach, and in certain patients whose stomachs possess a low resisting power, catarrhal gastritis may supervene and take its place in the morbid cycle thus induced.

The nutrition of the patient may suffer materially as the increasing anæmia and the steady loss of weight and strength may show, and this general failure is due in part to the disease of the kidneys and in part to the impaired state of the stomach.

This fact emphasizes the importance of examining the stomach in cases of manifest disease of the kidneys just as, on the other hand, the urine should be carefully studied in cases of gastric disorder.

If gastric symptoms are present in catarrhal gastritis, they are usually indefinite and changeable. Loss of appetite, nausea, vomiting, eructation, pyrosis, weight and distress in the epigastrium, pain of greater or less severity—a few or all of these symptoms may be complained of at different times. They are, as will be seen, not distinctive of catarrhal gastritis or of renal disease, and only by examining the stomach contents and the urine are we able to arrive at a knowledge of the true state of affairs.

The chemistry of digestion is usually somewhat changed in this form of gastric catarrh. Hydrochloric acid is secreted in only small quantities and is likely to progressively diminish as time wears on and the gastric glandules atrophy. Owing to the debilitated condition of muscular tissue everywhere in chronic renal disease, the musculature of the stomach loses its tonicity, and motion becomes sluggish and inefficient. There is, however, no absolute rule in this matter of gastric motility, as in a proportion of cases the viscus empties itself hurriedly in spite of its flabby condition, while in other cases the motor power of the stomach appears changeable from day to day. If hydrochloric acid is subnormal and if the stomach allows food stagnation to occur in any degree, lactic acid is very apt to be formed by fermentation of the stomach contents. Such fermentation is especially the result of improper diet coupled with the predisposing conditions above mentioned.

In old people who have fibroid hearts, thickened arteries, and contracted kidneys the stomach is often the seat of the same element of parenchymatous atrophy with formation of new connective tissue that eventuates in thinning of its mucous membrane and the disappearance of some of the gastric glandules. How far this condition of the gastric mucosa in old age depends upon the fibroid state of the kidneys it is difficult to say. It is reasonable to suppose that in many cases the renal disease and the gastric changes are concomitant results of a common cause, or that the morbid state of the kidneys is partly the result of the action of noxious and irritating products arising from disordered gastric digestion.

Again, there are many old people whose kidneys are the seat of chronic diffuse nephritis, the parenchyma of the organ being chiefly involved; whose arteries show but little change; whose hearts give no reason to conclude that fibrosis has occurred in them to any extent; and whose stomachs are free from pronounced inflammatory change, and in these cases, at the beginning, digestion is carried on correctly, becoming impaired only when the gradual failure in the general health and strength of the patient reaches a point whereat muscle and nerve and glandular tissue fail because of vitiated and imperfect nutrition.

The previous habits of the patient exercise a large influence upon the resistance his stomach will show to the depraved blood-state accompanying renal disease. Excess in the use of alcohol, morphine, cocaine, tobacco, tea, and coffee inevitably aggravates existing gastric disorder, and certainly intensifies the morbid condition of the kidneys.

The degree of so-called uræmia and the general condition of the patient, his nervous symptoms, his bowels, circulation, and so on, are points of much importance in the consideration of a case of gastric disease associated with, and partially secondary to, some form of renal disease, and the functions of the stomach may be restored in some degree if the uræmia is not too profound and unyielding.

Chronic catarrhal gastritis is by no means the sole disorder of the stomach occurring in connection with disease of the kidneys. I have found hyperchlorhydria associated with severe pain in cases of more acute renal inflammation or irritation, but no catarrhal gastritis was present. In one case, particularly of this nature, the patient gave a history of having contracted syphilis seventeen years before I saw him. Examination of his urine disclosed the presence of albumin and a few granular casts. The stomach was found entirely free from food four hours after a plain mixed meal, but there was withdrawn about a pint of clear viscid fluid which had a total acidity of forty per cent. due entirely to free hydrochloric acid. The secretion of hydrochloric acid is sometimes diminished, and fermentation, giving rise to the formation of organic acids—lactic, acetic, and butyric—is set up without there being any appreciable gastric catarrh. In cases of kidney disease I have found achylia gastrica (Einhorn), and this condition may have depended somewhat upon the morbid state of the kidneys. In all probability some renal diseases are in a measure due to defective gastric chemistry. It is a most difficult matter to determine which disease occurs primarily in many cases of gastric disturbance coupled with albuminuria, casts, and diminished excretion of urea. The blood-state called "uræmia" results from the absorption of certain poisons formed probably somehow and somewhere in the gastro-intestinal tract, and these poisons cause nephritis as the kidneys endeavor to effect their elimination. The kidneys are excreting organs, and in uræmia there is something more than their failure to rid the blood of poisons ordinarily formed within the body in a healthy condition of digestion, absorption, circulation, and assimilation. There must be some unusual toxine or toxines elaborated within the body independent of and before the onset of nephritis, which toxine sets up inflammation in the kidney, and then a morbid cycle is established in which continued auto-intoxication (uræmia) occurs, while the eliminating power of the kidneys is steadily lessened by inflammatory changes. (See an excellent paper bearing upon this point by Hughes and Carter in the *American Journal of the Medical Sciences*, August, 1894.)

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* Read before the Buffalo Academy of Medicine, November 13, 1894.

Severe gastralgia may occur in patients whose urinary examination reveals the presence of albumin and casts. In some of these cases gastric chemistry is about normal, while in others the secretion of gastric juice may oscillate above and below the normal point. In a few cases the gastralgia depends partly upon the irritating action of a large amount of highly acid gastric juice secreted in an empty stomach (supersecretion and hyperchlorhydria). In those cases having non-irritating gastric contents the gastralgia depends upon the action of the poison the kidneys fail to eliminate, or upon impoverishment of the blood, or upon reflex disturbance from disease of other organs, or upon hysteria, disease of the central nervous system, syphilis, or a variety of causes. In many cases of essential gastralgia, as well as in other forms of gastric complaint, in hysterical females elimination of urea is notably decreased. It is not uncommon to find only eight or ten grammes of urea excreted in twenty-four hours. These cases are very promptly improved by forced perspiration (thermal baths) and active catharsis, not only in the matter of their gastralgias, but also in their renal elimination, which usually rises rapidly toward a healthy sufficiency. Gastralgia may occur associated with, though independent of, inflammation of the kidneys, as, for instance, in the case of a man under my observation some time ago who had beginning locomotor ataxia with gastric crises, and in whose urine albumin and casts were found. In middle-aged women who are the victims of that very obscure malady known as arthritis deformans, attacks of agonizing gastralgia are common, while a very slow form of diffuse nephritis is evidenced by intermittent mild albuminuria with a few slightly granular casts and somewhat diminished elimination of urea. The urinary conditions in some cases are not constant, but there is reasonable ground for concluding that nephritis exists.

In these cases the gastric disorder usually precedes the joint and renal troubles, although there may be no complaint of the stomach made by the patient. The gastric chemistry is faulty, or the stomach empties itself into the duodenum too hurriedly after each meal, or gastric motion is insufficient, allowing food stagnation and fermentation. Imperfect digestion means depraved, polluted blood, which in turn causes slow organic changes in remote organs of the body.

Renal calculus is prone to excite reflex disorders of the stomach, especially during attacks of nephritic colic when vomiting is apt to supervene and assume some severity.

Other symptoms than vomiting not infrequently seem to bear a dependent relation to renal calculus, such as eructation, regurgitation, weight, distress, burning, and pain. I have found achylia gastrica in cases of renal and biliary calculi in men past middle age, and it is not improbable that in such cases the digestive disorder stands in some causative relation to the urinary and biliary conditions that favor the formation of calculi.

Floating kidney is a well-known cause of many gastric disturbances. It is usually associated with dilatation of the stomach, and the right kidney is most commonly found movable. Eructation, pyrosis, nausea, and vomiting are the most common gastric symptoms accompanying movable kidney; and as these symptoms have disappeared in many cases after the operation of nephrorrhaphy, it is reasonable to conclude that they depended upon the displaced kidney. The gastric disorder in renal dislocation is in part the result of mechanical traction and in part it is a reflex disturbance.

In a great many cases, however, the gastrectasis exists in a marked degree, and food stasis occurs, with occasional attacks of copious vomiting, persistent constipation, and many of the ills resulting from dilatation of the stomach. In these latter cases many, if not all, of the gastric symptoms may be overcome and the general health of the patient may be remarkably improved by appropriate treatment of the stomach without bringing the kidney to anchor by operation.

436 Franklin Street.

The Pennsylvania State Medical Society.—We have been asked to say that members who wish to read papers at the meeting to be held in Chambersburg, on May 21st, 22d, 23d, and 24th, are requested to send their names and the titles of the papers they wish to read to the chairman of the committee on scientific business, Dr. Charles W. Dulles, No. 4101 Walnut Street, West Philadelphia. The committee desires papers to be absolutely short enough to be read in ten minutes. At the last meeting a large number of interesting papers were not read because those preceding them were too long, and it is hoped that those who prepare papers for the coming meeting will condense them as much as possible. The laws of the society permit each writer to occupy twenty minutes, but it will be of advantage if the members do not avail themselves of all their privilege.

THE QUESTION OF THE EFFICACY OF SUBCONJUNCTIVAL INJECTIONS OF MERCURIC BICHLORIDE IN OPHTHALMIC THERAPEUTICS.*

By CHARLES STEDMAN BULL, A. M., M. D.,
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The attention of ophthalmologists to the supposed beneficial effects of subconjunctival injections of mercuric bichloride in ophthalmic therapeutics was first generally attracted by the papers and publications of Darier, an assistant of Abadie's clinic in Paris. Intraocular injections had for some time previously been employed in the treatment of certain diseases of the eyeball, notably by Abadie in cases of sympathetic ophthalmia (1889), and in certain syphilitic lesions of the eye (1890). Secondi had also claimed good results in the treatment of sympathetic ophthalmia by subconjunctival injections of sublimate. Darier's interest in the subject had been stimulated by his observations on the effects of the intraocular injection of tincture of iodine employed in cases of detachment of the retina, which he carried on in conjunction with Dubarry; his attention being particularly attracted by the rapidity with which dilute solutions injected into the eye were absorbed without producing any grave symptoms. Subsequently (1891) he employed subconjunctival injections in cases of traumatism, and claimed that he thus gained a really efficacious antisepsis. In all his subsequent experiments he has worked upon the theory that the aim of all therapeutic measures in the management of localized infectious diseases should be to inject some antiseptic agent into the infecting focus or its immediate vicinity, so as to irrigate and render aseptic the entire lymphatic territory in which the morbid process is located. He claims that physiology has taught that colored solutions injected under the conjunctiva rapidly penetrate the cornea, aqueous humor, lens, vitreous, and deeper coats of the eye. His experiments included the entire field of inflammatory lesions and traumatisms of the eyeball. He uses a Pravaz syringe, the needle having an iridized platinum point, and he produces local anæsthesia of the parts by cocaine. When complete conjunctival insensibility has been produced, he seizes the ocular conjunctiva by forceps at a point from six to eight millimetres from the corneal margin and injects the necessary quantity of liquid obliquely beneath it. All the steps of the operation are performed with extreme antiseptic precautions. He claims that the œdema and pain resulting from the injection vary according to the amount of liquid injected and the peculiarities of the patient. He uses a solution of mercuric bichloride of one to one thousand, and injects a twentieth of a milligramme at a time, though the dose he claims may be varied according to the severity of the disease. The number of injections necessary vary from three or four to fifty or sixty, according to the degree of chronicity of the disease, but if after ten injections no result is obtained, he considers it useless to continue the treatment. He claims to have had no serious complications, other than the severe pain, the conjunctival œdema, and occasionally some ecchymosis or hæmorrhage. He draws the following conclusions: In all cases of infectious disease, acute or chronic, primary or secondary, the result of mechanical irritation, like erosion of the cornea or severe traumatism, or of infection from within, whether reflex, metastatic, syphilitic, or blennorrhagic, subconjunctival injections of sublimate offer the most rapid and energetic method of limiting the morbid process. This local therapeutic agent does not at all limit the general treatment, but rather acts as an efficient aid in the treatment of the case.

Chibret has employed this method in the treatment of syphilitic diseases of the eye, and regards it as the best method, but prefers a solution of the cyanide of mercury to the sublimate solution. He speaks of severe pain and diarrhœa occasioned by the injections, and recognizes the latter as a sign of general poisoning by the drug, which must be actively combated when it occurs. (*Annales d'oculistique*, July, 1893.)

Gepner (*Ctrlbl. f. prakt. Aug.*, January, 1894) considers that if this method is faithfully and impartially tried, it will be found in many cases to be the best and surest method of treatment, and that its employment is justified in all cases in which mercurials are indicated. He recognizes that injections of sublimate solutions cause a deposit of albuminates in the lymphatics, but thinks that a certain portion of the injected fluid is still distributed through the tissues and acts directly on the diseased germs, either by killing them or enfeebling their activity, and thus materially shortens the duration of the disease.

Terson (*Ann. d'oc.*, May, 1894) considers that the utility of subconjunctival injections of sublimate has been fully demonstrated. He reports one case of serious episcleritis which was rapidly healed by this method. He has, however, obtained very contradictory results—some remarkable successes, some cases of complete failure, and not a few cases in which the condition was made decidedly worse.

Sgrosso (*Trans. of the Thirteenth Ital. Ophthal. Congress*, Palermo, 1892, and *Annali di ottalmologia*, 1893, fasc. 6) gives the honor of priority for this treatment to Secondi. He employed subconjunctival solutions of sublimate in eighty-five cases of all varieties of disease of the eye, and found that the severity of the symptoms was modified and the duration of the disease materially shortened in corneal abscesses and ulcers, and parenchymatous keratitis. Abscesses with hypopyon seldom required more than one or two injections. In iritis, however, the method gave doubtful results, and gummata were made worse by its use, and no benefit resulted from its employment in cases of neuro-retinitis and sympathetic ophthalmia.

Pjeunov (*Wjestnik Oftalmologii*, May–June, 1893) considers that subconjunctival injections of sublimate are the simplest and best local means of treatment in diseases of the deeper coats of the eye, especially in sympathetic ophthalmia, and believes that the favorable effects of the treatment are due to the rapid absorption of the solution, and to the acute irritative symptoms which follow the injection, which cause a rapid exchange of the nutritive fluids.

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* Read before the Section in Ophthalmology and Otology of the New York Academy of Medicine, December 17, 1894.

Gallimaerts (*Bull. de l'Acad. roy. de Belgique*, 1893) has found sublimate injections very valuable, especially in corneal troubles, sympathetic ophthalmia, and purulent processes after traumatism. He claims that under cocaine they cause no pain. He has used it eight hundred times, and has never seen a bad result.

Grand-Clément (*Lyon méd.*, April, 1893) found sublimate injections of little value in corneal infiltration, and of no value in diseases of the retina and optic nerve, but considers them very useful in diseases of the iris and chorioid.

Gagarine (*Petersburger Inaugural Thèse*, 1893) found subconjunctival injections of sublimate of great value in gummatous iritis, plastic and purulent iritis, and chorioiditis, but thinks them of little or no use in parenchymatous keratitis and scleritis.

Venneman, Coppez, Lagrange, and Motais (*Ann. d'oc.*, August, 1893) all agree in attributing excellent results to the treatment by subconjunctival injections of sublimate in cases of acute and chronic irido-chorioiditis and sympathetic ophthalmia. Lagrange goes so far as to maintain that the sublimate solution enters the anterior chamber by means of the interstitial lymphatic channels, and thus acts locally on the diseased tissues.

Vossius (*Ann. d'oc.*, August, 1893) also claims good results from their use in parenchymatous keratitis and in chorioiditis, and Rogman agrees with him.

Pflueger (*Ann. d'oc.*, August, 1893), on the contrary, has abandoned the use of mercurials by subconjunctival injections, but alleges equally good results from solutions of trichloride of iodine, in the strength of 1 to 2,000.

Among those authors who do not believe in the efficacy of subconjunctival injections of mercurials, or are opposed to their use, may be mentioned the following:

Wecker and Masselon have not found that they produced any favorable result when used alone without the aid of other means.

Laqueur found that sublimate injections were borne well enough, but produced no effect on the course of the disease, and he has abandoned them.

Both Dianoux and Deneffe agree in the main with these conclusions.

Haab has employed them in cases of interstitial keratitis without any beneficial result.

Michel is of the opinion that the method of subconjunctival injections does not accord with the principle of ocular asepsis.

Cohn objects to them on account of the severe irritation and reaction induced by their employment.

Samlsohn, Landolt, and Panas all object to their use on theoretical grounds. The latter asks if it is supposed that the injections produce their effect by chemical action, which he considers impossible in the homœopathic dose in which they are administered, and furthermore, if so, it would be necessary to prove absolutely that the drug penetrates the eyeball, and this has never been done.

The most recent and important criticism on the therapeutical value of these subconjunctival injections has been made by Mutermilch (*Ann. d'oc.*, September, 1894). He does not believe that the sublimate solution reaches the diseased focus more readily when injected beneath the conjunctiva than when instilled into the conjunctival sac, while it does cause certain disagreeable complications which may lead to disastrous results. He quotes the work of Bellarminoff to prove that solutions instilled into the conjunctival sac pass immediately through the cornea in quantities much larger than if these same solutions were injected beneath the conjunctiva. Up to the present time we have no sufficient facts to prove the diffusion of sublimate solutions through the coats of the eye. The diffusion of different soluble substances varies within wide limits, and some of these solutions never penetrate into the anterior chamber at all. The experiments of Tichomeroff with sublimate gave a negative result. If we admit the bactericidal power of sublimate solutions, we must assume that they actually reach the diseased focus—that is, that they must penetrate all the membranes and fluids of the eye uniformly. This would eventually end in such extreme dilution as would be deprived of all antiseptic action. The advocates of the subconjunctival plan of treatment usually inject one twentieth of a milligramme at a time. A part of this passes into the general circulation and is lost as far as the eye is concerned; another portion is eliminated into the conjunctival sac through the conjunctiva itself. This leaves scarcely one third to penetrate into the interior of the eye, or about one sixtieth of a milligramme, which is too minute to possess any antiseptic power. Hence the claims of the partisans of the method by subconjunctival injection, that under its use hypopyon is absorbed very rapidly from the anterior chamber, can not be accepted, for its bactericidal power has been lost by dilution. More can be expected from instilling the solution into the conjunctival sac, especially in cases of corneal ulceration, for the penetration of soluble substances through the cornea is materially favored by loss of its epithelium. In regard to the use of this method in the treatment of sympathetic ophthalmia, its partisans, Darier, Gepner, Pjeunoff, and others, accept Deutschmann's theory as to the parasitic nature of this disease. But it must be remembered that this theory does not explain all the clinical signs nor the mode of development of sympathetic ophthalmia, and that it is opposed by scientific facts generally accepted, and which can not be refuted. Deutschmann's theory can not be regarded as substantiated until we can prove that the micro-organisms which cause sympathetic ophthalmia can transport themselves from place to place, and even travel against the current of the fluid in which they float. Up to the present time no actual observation has been made of the metastasis of an ocular neoplasm from one eye to another. Hence sympathetic ophthalmia can not be regarded as due to micro-organisms, but rather as dependent upon certain other factors as yet unknown. Mutermilch sums up his criticism in an epigrammatic way by asserting that, in treating sympathetic ophthalmia by subconjunctival injections, we are guilty of a double mistake in trying to destroy organisms which do not exist by a remedy which has no bactericidal power. He also thinks that Gepner has been guilty of a great error in attributing the success of his treatment of myopic chorioiditis to subconjunctival injections by forgetting the conditions in which these patients were, and in neglecting the most powerful of all the factors which favorably influence the progress of the disease—viz., the absolute repose of the eye.

My own experience has not been very extensive. During the past year I have employed subconjunctival injections of sublimate solutions in the treatment of various diseases of the eye in forty-eight cases, which were classified as follows: Interstitial or parenchymatous keratitis, six cases; abscess of the cornea with hypopyon, eight cases; scleritis and episcleritis, two cases; syphilitic iritis, ten cases; iridochorioiditis, syphilitic and non-syphilitic, fifteen cases; traumatic orbital cellulitis, three cases; sympathetic ophthalmia, two cases; syphilitic neuro-retinitis, two cases.

The solution employed was of the strength of 1 to 1,000 and the amount injected at each operation was one twentieth of a milligramme, as recommended by Darier.

Of the six cases of *parenchymatous keratitis*, four were instances of unilateral inflammation of the cornea and two were bilateral. The youngest patient was nine years of age and the oldest seventeen. Of the eight eyes involved, three were of the vascularized variety. All were chronic and resisted more or less markedly the usual methods of treatment employed in such cases. The number of injections varied from three to ten at intervals of a week. In three of the eight eyes there was severe reaction following the first injection, lasting from four to eight days, but this did not occur after the subsequent injections and not at all in the other cases. In all, the pain caused by the injections was severe and lasted several hours in spite of the free use of cocaine before and afterward. In none of the cases was there any material effect produced by the remedy, either in lessening the severity of the symptoms or in shortening the duration of the disease. Allowing for the marked reaction in three of the eyes, none of the cases were made materially worse by the injections, and all eventually got well on reverting to the usual method of treatment by atropine, hot applications, leeches to the temples, and syrup of the iodide of iron and cod-liver oil internally.

In the eight cases of *corneal abscess* with *hypopyon*, all of which were of traumatic origin, there was severe reaction in three and slight reaction in five. None of the cases proved a total loss, but in none was there any apparent improvement in the symptoms or in the duration of the disease. The pain induced by the injections was severe in all, and in three cases the reaction was so severe as to excite fears of orbital cellulitis, which happily did not occur. Two of the eight cases ended in partial slough of the cornea. All the others recovered with good or partial vision under the use of hot bichloride applications (1 to 5,000), atropine, the galvano cautery, and bandaging.

The two cases of *scleritis* and *episcleritis* were marked instances of the disease occurring in syphilitic patients, but without any circumscribed gummatous infiltration. The reaction in both was marked and the pain very severe, but the signs of irritation rapidly subsided, and the cases certainly progressed more rapidly to recovery than is seen under the usual form of treatment. One of the cases required but one injection and the second only three injections. I have had no opportunity of employing this method in gouty or rheumatic scleritis, and therefore am unable to express an opinion as to its efficacy in this very chronic and obstinate affection.

The ten cases of iritis were of the plastic variety and occurred in patients who were markedly syphilitic. None were of the gummatous variety. There was moderate reaction in six cases and violent reaction in four cases, so severe that I deemed it unwise to employ a second injection. I was unable to discern any improvement in the course of the disease by this method of treatment over the usual means employed in any case, and in the four cases in which severe reaction followed the injections the healing process was certainly retarded. Atropine was used in all cases. The pain induced by the injections was severe in all and lasted several hours.

Of the fifteen cases of *iridochorioiditis*, eleven were in syphilitic patients, and in four cases syphilis was presumably absent. The eleven syphilitic cases were all chronic and were accompanied by but slight exudation into the aqueous and vitreous. The four non-syphilitic cases were all acute and were accompanied by severe pain and considerable infiltration into the vitreous. In one of the syphilitic cases there was an apparent improvement in the symptoms and duration of the attack, the reaction induced by the injection being slight. In none of the other syphilitic cases could it be stated that anything was gained by this method, and the reaction was sometimes severe. In one case ten injections were given. In the four non-syphilitic cases a very decided improvement was noted in three, both in the clearing up of the vitreous and in the subsidence of the external signs of inflammation, and these cases recovered with very useful vision. In all the pain induced by the injections was severe and the resulting reaction was moderate.

The three cases of traumatic *orbital cellulitis* bore the injections extremely well. The injections were made very slowly and caused very severe pain, but there was almost no increase of any of the external signs of cellulitis. From one of the cases a foreign body had been removed from the orbit, and the injections were made in the tract of the wound. In spite of the absence of reaction the cases pursued the usual course, and it could not be claimed that the duration of the process was shortened in any of the cases. All recovered, two with very good vision and one with perception of light. There was less reaction from the injections in these cases than in any of the other cases in which the injections were employed. In all three it was necessary to make incisions into the orbital tissue before the process was stayed.

In the two cases of *sympathetic ophthalmia* the process was made decidedly worse by the injections. The pain was severe, the reaction very violent, the intensity of the symptoms increased, and the duration prolonged. Both were cases of traumatism, comparatively recent, and in both cases injections were made beneath the conjunctiva of both eyes simultaneously. Both were advanced cases of sympathetic inflammation, and therefore perhaps unfavorable ones for the treatment. Only one injection was made in each eye, on account of the violent reaction which followed its use. If it were possible to express an opinion from two cases, I should say that I was disinclined to use this method in cases of sympathetic inflammation.

In the two cases of syphilitic *neuro-retinitis*, though the pain induced by the injections was severe, the reaction was very moderate, and in both cases I used seven injections at intervals of five or six days. Both patients recovered useful vision, and the œdema and infiltration of the optic disc and retina nearly entirely disappeared, but I could not see that the treatment by injections brought about any shortening in the duration of the disease, and I should not employ it in such cases again.

The conclusions which I have ventured to draw from the above observations are as follows:

1. The pain induced by the injections is always severe, in spite of the persistent and careful use of cocaine.

2. The reaction is apt to be severe, and sometimes very severe.

3. The only classes of cases in which the sublimate injections seemed to exert any positive effect in allaying the severity of the symptoms and shortening the duration of the process were those of scleritis and acute irido-chorioiditis of the non-syphilitic type.

4. The method of treatment by subconjunctival injections of sublimate solutions is still on trial, and should not be promiscuously employed in all sorts of cases as part of or in place of the routine treatment. It must stand or fall on its merits, and these can only be ascertained by careful and long-continued observation of a large number of cases. The severe pain and the occasional violent reaction produced by the injections must always be a bar to the universal employment of this method of treatment.

MULTIPLE GUNSHOT WOUND OF THE ABDOMEN,

WITH RECOVERY.[*]

By M. L. BENNETT, M. D.,
WATKINS, N. Y.

On Sunday afternoon, August 26, 1894, between the hours of five and six, I was hurriedly summoned to Coal Point, a mile and a half distant from my home; the messenger said that an Italian laborer by the name of F. R., whose age was thirty-one years, had been shot by one of his companions only a few moments before he left him, and he scarcely thought the man would be living on my arrival. Having just returned from the country and being in my carriage at the time, I drove immediately to the spot, and there found the victim lying on the grass about two rods from where he was shot; he had attempted to walk, but had fallen from fainting and pain. I ordered him removed to a vacant house a few feet distant. After being laid down he soon vomited, and had vomited twice before while lying on the grass. He complained of great pain in the abdomen, which, on examination, revealed a bullet wound about an inch and a half to the right of and a little below the umbilicus; the abdomen was somewhat distended; pulse quick and feeble; respiration, 40; face very pale and anxious.

I immediately gave him a hypodermic of a fourth of a grain of sulphate of morphine, and sent for a carriage to remove him to his home in Watkins, having concluded to operate should my patient be in condition.

After making the necessary arrangements I called at the patient's house, where he had arrived a few moments before; I again made a hurried examination and found him suffering with much less pain, though the pulse was quite feeble, and he declared he could not live longer than a few moments; this, in my opinion, was partially due to fright accompanied by the great loss of blood.

Realizing that no time could be lost, we set about getting our patient in readiness. I was kindly assisted all through the operation by Dr. James. K. King, of the Glen Springs Sanitarium.

After thoroughly cleansing the patient and ourselves and preparing plenty of sterilized water to be used with a fountain syringe, and after immersing my instruments in warm carbolized water, the abdomen was shaved and washed with bichloride-of-mercury solution and afterward with sulphuric ether. The patient was brought under the influence of chloroform administered by Dr. O. B. Crawford, of Watkins. Placing linen towels, previously wrung out in a warm bichloride solution, on both sides of the abdomen, I made an opening by an incision eight inches long, beginning a little above the umbilicus on the side of the wound and extending through the center of the linea alba to the pubes; after the peritonæum was opened between two and three pints of clotted blood poured out.

Beginning at the descending colon the intestines were carefully examined, and as fast as a wound was found I closed it with catgut sutures after Lembert's method.

There were sixteen bullet holes of the intestines found and closed, located in the cæcum, ileum, and jejunum; after washing out the abdomen by using three or four quarts of sterilized water (warm), quite an amount of blood clot and fæcal matter that had oozed through the wounds came away.

The abdominal wound, including the peritonæum, was closed with one silk stitching, leaving iodoform gauze at the lower end of the wound so that it reached down in the pelvic cavity. Iodoform powder was sprinkled over the edge of the cut surface and the wound was then covered with iodoform gauze and absorbent lint, and over all a roller bandage was applied.

He rallied quickly from the anæsthesia and was put to bed about 11 P. M., having been under the operation for nearly four hours. After giving some general instructions we left our patient, and returned the next morning at nine o'clock, when we found he had passed a fair night, having been given a hypodermic of a fourth of a grain of sulphate of morphine; he had rested for six hours, having very little pain, a temperature of 99·5°, pulse, 100.

In the evening his temperature rose to 100·5° with the pulse about the same as in the morning.

I gave him liquid peptonoids in tablespoonful doses every three hours, and this was his diet for six days, with the exception of half a glass of milk.

Each day he improved, and at no time during the treatment did his pulse rise above 110 or his temperature above 102°; after the second day I began drawing out the gauze drain, and by the sixth day it was all removed, together with most of the abdominal sutures, leaving only a few at the lower end of the wound where the drainage had been, the entire wound above the drain having healed.

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[*] Read before the Elmira Academy of Medicine, November 7, 1894.

On the morning of the 30th, four days after the operation, he had three or four watery stools, though without pain; after this the bowels would average one movement in from thirty-six to forty hours. All movements of the bowels were made in a bedpan while the patient was in a horizontal posture, which posture was maintained for sixteen days.

After eight days I allowed him a change in diet, including milk, eggs, custard, toast, codfish, etc. During his confinement there was no distention or tenderness of the abdomen, except around the cut surface.

On the seventeenth day I allowed him to sit up in a reclining chair for an hour or so, and increased the length of time each day thereafter.

On the twentieth day after the operation my patient began complaining of pain in the left sacral region; on examination I could distinctly feel beneath the tissues next to the bone what I supposed to be the bullet.

On the following day I made an incision and removed a 32-caliber conical ball, very much battered; and on the tenth day of October my patient resumed his former occupation as section hand on the Northern Central Railroad.

A CASE OF

CHRONIC ADHESIVE PERICARDITIS,

WITH ENTIRE OBLITERATION OF THE SAC, NOT DIAGNOSTICATED BEFORE DEATH.

By ELLWOOD OLIVER, M.D.,
ALBANY, N. Y.,
HOUSE PHYSICIAN, ST. PETER'S HOSPITAL.

My object in reporting the following case to your journal is twofold. First, because the conditions found post mortem show the case to be a somewhat rare one. Secondly, that other practitioners, especially the younger ones, when they meet with a case which gives a history and signs parellel to this one, may always bear in mind the possibility of such a form of pericarditis and thereby not fall a victim to the error which I made in overlooking it. In perusing the case you will note that there was neither systolic, præcordial retraction, nor Friedreich's "diastolic collapse" of the jugular veins to be seen. The case is as follows:

Mr. H. B., aged fifty years; born in Ireland; resident of Albany; stonecutter by occupation; single.

Family History.—Negative.

Early History.—Nothing could be learned of his history, other than that he had been a hard drinker up to about three years ago, when he began to be troubled with a cough, worse at night, and a thick, yellowish expectoration. Some time after this noticed getting out of breath easily. At times, after much exertion, breathing became asthmatic. About July 1, 1894, noticed that his water grew very small in quantity; that his breath became short upon the least exertion; that he frequently had attacks of asthmatic breathing. His appetite became very poor, and, his surroundings being very meager, he grew gradually weaker, and on August 18th entered St. Peter's Hospital, practically exhausted.

Subjective Symptoms.—Great weakness; shortness of breath; cough, worse at night; slight yellowish expectoration; dizziness upon rising from a chair or getting out of bed; loss of sleep and appetite; poor memory; constipated; making small amount of water; speech sluggish; patient stupid; disposition uninviting; temperament phlegmatic.

Physical Examination.—Some emaciation; skin pale and bloodless, with slight dusky tinge; eyes dull; tongue moist and slightly coated; neck short and bent forward; sterno-mastoid muscles stand out; chest barrel-shaped; epigastric angle quite obtuse; respirations accelerated; marked abdominal breathing; chest moves up and down with respiration; retraction of intercostal spaces in lower part of chest on both sides on inspiration; clavicles not prominent; apex beat not seen.

Pulse, 96, small, thready, weak, regular; beady feel to radial arteries; temperature, 98° F.; vocal fremitus increased over right apex, otherwise negative; apex beat of heart not distinctly felt.

Dullness over right apex, otherwise hyper-resonant over both lungs; cardiac dullness slightly increased; liver and spleen dullness normal.

Harsh respiration with prolonged expiration over both lungs; bronchial breathing over right apex; sonorous, sibilant, and at times medium moist râles heard over front and back; fine moist râles heard occasionally over right apex; heart sounds very feeble; pulmonic second sound accentuated; apex beat very faint, heard best in fifth left interspace, three inches and a half from mid-sternum; no murmurs.

Urinary Examination.—Specific gravity, 1·010; urates; trace of albumin; no casts.

Sputum Examination.—Negative.

The case was diagnosticated pulmonary emphysema, fibroid phthisis of right apex, weak, fatty heart, and arterial atheroma.

Under rest, good diet, and internal medication he improved for a time, then at intervals of a week or two attacks of dyspnœa would come on after the least exertion, and at times without exertion. During the early part of October he had an attack of dyspnœa which lasted about two days. On November 14th was taken with an attack of asthmatic breathing which did not give way to treatment. Pulse, 96; temperature, 96·4°; respirations, 26; sonorous and whistling râles heard on expiration and inspiration. He attempted to get out of bed on the following day and fell from dizziness. On the 18th breathing was less asthmatic, but rapid and superficial. Pulse, 76; temperature, 98° F.; patient semi-delirious. Died on November 21st.

Post-mortem revealed the following: Both pleuræ greatly thickened, firmly adherent to each other, the chest walls, the diaphragm, and the lungs; both lungs emphysematous; hypostatic congestion of bases; fibroid degeneration of right apex, same containing four or five small cavities the size of a hazelnut or smaller; the pericardium firmly attached to the surrounding structures, the two layers greatly thickened and firmly adherent; the heart firmly attached to the pericardium, thus entirely obliterating the sac; as the heart was freed from the sac, its surface presented a papillary or hairy appearance; the ventricular walls thickened and fatty; right ventricle full of blood, left contained small clot; small thickened nodule (fibrous) on one of the aortic semilunar valves, otherwise valves normal; three small patches of atheroma on internal surface of ascending aorta; coronary arteries atheromatous; liver, spleen, and kidneys congested.

A Thief caught by a Doctor.—Dr. W. Whitehead Gilfillan, of Lexington Avenue, returned to his house last Saturday afternoon just in time to catch a thief who had stolen two overcoats while pretending to await the doctor's arrival. The man, Edward Dunn, said to be in the employ of a Bond Street photograph firm, has robbed many physicians, and Dr. Gilfillan, who has had him indicted, is entitled to the thanks of the New York profession.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, JANUARY 19, 1895.

OBSTINATE HICCOUGH.

Mr. W. Langford Symes, L. R. C. S. I., L. R. C. P. I., contributes to the January number of the *Dublin Journal of Medical Science* an exceedingly interesting article entitled A Study of Obstinate Hiccough. Mr. Symes gives the history of a case, and considers the general subject of persistent hiccough as regards its ætiology, its pathology, its prognosis, and its treatment. In regard to the pathology of hiccough, he states the current belief to be that it is a reflex spasm of the diaphragm with simultaneous closure of the glottis, the pneumogastric being the afferent nerve concerned and the phrenic and recurrent laryngeal the efferent nerves. He, however, questions this agency of the phrenic nerve, but thinks the sympathetic connections of the semilunar ganglion far more likely to be involved. For this he gives the following reasons: 1. The diaphragm appears to contract before the laryngeal muscles, and this points to a closer and more direct communication with the gastric portion of the vagus than with even the recurrent laryngeal. 2. The course of the phrenic nerve is healthy and its respiratory function perfect. 3. The patient has no control over the spasms, whereas the phrenic nerve is always subservient to the will. 4. Remedies applied to the origin or over the course of the phrenic nerve or to the cervical spine—such as blisters, ice-bags, compression, etc.—have no effect, while those directed to the diaphragm, the stomach, and the solar plexus are generally effective. 5. The connection between the pneumogastric and phrenic nerves by means of the third, fourth, and fifth cervical nerves is remote, and were this the route taken the impression must travel more than double as fast on the phrenic nerve as it does on the recurrent nerve, since it reaches the diaphragm before the larynx—conditions, the author remarks, which are unphysiological. 6. Romberg's and Bright's experiments show that direct irritation of the phrenic nerve will not produce hiccough. 7. There is a perfect reflex-loop between the stomach and the diaphragm which answers the purpose more directly, separated from the function of respiration and beyond the patient's control. 8. Hiccough is influenced by swallowing and by vomiting to a greater degree than by any respiratory effort.

Some clinical evidence is on record in favor of the agency of the phrenic nerve in the production of hiccough. One piece of this evidence, among others, is the statement by M. Leloir that he has stopped hiccough in a child twelve years old by pressing with the finger for three minutes on the phrenic nerve between the two attachments of the sterno-cleido-mastoid muscle, also that he had resorted to this method in a great number of cases, and always with success. How is it possible, asks Mr. Symes, that M. Leloir can so exactly confine the pressure in such a region as the neck? "Can he," he continues, "prove to us that his digital compression did not equally affect the child's pneumogastric, or even the superior and inferior cardiac nerves which are contiguous? We do not, however, doubt his cures, but the laying of so much stress upon the phrenic nerve in particular, in the pathology of these cases, seems to us, after a very careful and unprejudiced inquiry into the phenomenon, to be at least an assumption of facts which have not been proved."

Mr. Symes says it is his fervent wish that his article may help to elucidate a most distressing condition, "an awful malady," and rescue it from the domain of quackery and empiricism, and he adds that he will feel that he has not written in vain if it guides others for even a few steps through the darkness and obscurity that still surround the subject in case they engage in similar researches.

MINOR PARAGRAPHS.

THE PHYSICIANS' MUTUAL AID ASSOCIATION.

At the twenty-sixth annual meeting of the New York Physicians' Mutual Aid Association, to be held in the Academy of Medicine's building next Thursday afternoon, important amendments to the by-laws will be proposed, and it is highly desirable that the sense of the meeting should represent that of the members as closely as possible. On that account, among others, it is to be hoped that the attendance will be large. The annual report of the board of trustees will be presented, and officers for the ensuing year are to be elected. The affairs of this association now concern so large a proportion of the profession in the city, as well as a considerable percentage of the physicians of the State, that it is more than ever necessary that they should continue to be administered with the prudence and carefulness that have placed the association on its present satisfactory footing.

DR. KÁLLAY'S AERZTLICHER ALMANACH.

The fourteenth annual issue of this very useful handbook, for the year 1895, has lately reached us. It has the usual range of contents, including a diary for the year, and is embellished with a portrait of Professor Behring.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 15, 1895:

DISEASES.	Week ending Jan. 8.		Week ending Jan. 15.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	8	3	12	3
Scarlet fever	126	16	116	16
Cerebro-spinal meningitis	0	0	2	2
Measles	78	8	76	3
Diphtheria	236	57	209	34
Small-pox	5	0	8	1
Tuberculosis	30	71	180	118

Dr. William Osler, of Baltimore, authorizes us to state that he has not accepted the principalship of McGill University, and that he has no intention whatever of leaving the Johns Hopkins University.

The Society of Medical Jurisprudence.—The special order for the last meeting, on Monday evening, the 14th inst., was the president's inaugural address, on The Police Power and the Public Health, by John Sabine Smith, Esq.

The New York Polyclinic.—Dr. Francis J. Quinlan has been elected adjunct professor of rhinology and laryngology.

The New York Ophthalmological Society.—Officers for the ensuing year have been elected as follows: President, Dr. F. N. Lewis; vice-president, Dr. H. D. Noyes; secretary, Dr. F. D. Skeel; committee on admissions, Dr. Mathewson, Dr. Dennett, and Dr. Roosa.

The Lying-in Hospital of the City of New York.—The new hospital building, on the corner of Second Avenue and East Seventeenth Street, was opened for the inspection of an invited company on Wednesday afternoon, the 16th inst.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 6 to January 12, 1895:*

De Shon, George D., First Lieutenant and Assistant Surgeon, will proceed from Fort Logan, Colorado, to Fort Douglas, Utah, and report for temporary duty.

Fisher, Henry C., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month.

Lynch, Charles, First Lieutenant and Assistant Surgeon. The leave of absence granted him is extended one month.

Polhemus, Adrian S., Captain and Assistant Surgeon, is granted ordinary leave of absence for one month and fourteen days, in addition to the extension of leave of absence on surgeon's certificate of disability.

Robertson, Reuben L., Captain and Assistant Surgeon. The leave of absence for seven days granted him is extended twenty-one days.

Shannon, William C., Captain and Assistant Surgeon, is granted leave of absence for three months on surgeon's certificate of disability.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending January 5, 1895:*

Farenholt, Ammen, Assistant Surgeon. Detached from the U. S. Revenue Steamer Vermont and ordered to the Naval Hospital, Norfolk, Va.

Kindleberger, C. P., Assistant Surgeon. Detached from the Naval Laboratory and Department of Instruction and ordered to the U. S. Revenue Steamer Vermont.

Cooke, George H., Medical Inspector, will attend, in addition to present duties, to officers on duty at League Island Navy Yard, but residing outside of the yard.

Society Meetings for the Coming Week:

Monday, *January 21st:* New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *January 22d:* New York Dermatological Society (private); Medical Society of the County of Putnam (quarterly), N. Y.; Buffalo Obstetrical Society.

Wednesday, *January 23d:* New York Academy of Medicine (Section in Laryngology and Rhinology): New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private), New York; Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

Thursday, *January 24th:* New York Physicians' Mutual Aid Association (annual); New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia.

Friday, *January 25th:* New York Clinical Society (private); New York Society of German Physicians; Yorkville Medical Association (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Saturday, *January 26th:* New York Medical and Surgical Society (annual—private).

Births, Marriages, and Deaths.

Died.

Baldridge.—In Huntsville, Ala., on Wednesday, January 9th, Dr. Milton C. Baldridge.

Hallam.—In Brooklyn, on Wednesday, January 9th, Dr. Albert Coburg Hallam, in his fiftieth year.

Hammann.—In New York, on Monday, January 14th, Dr. Elizabeth Hammann, aged twenty-eight years.

Lambert.—In New Orleans, on Tuesday, January 1st, Dr. Pierre Alexandre Lambert, in his eighty-seventh year.

Norbury.—In New York, on Sunday, January 13th, Dr. John F. Norbury, in his seventy-ninth year.

Semmes.—In Canton, Miss., on Wednesday, January 9th, Dr. A. T. Semmes.

Letters to the Editor.

THE PHYSIOLOGICAL RÔLE OF ANTITOXINE AND NUCLEIN.

1411 Walnut Street, Philadelphia, *January 14, 1895.*

To the Editor of the New York Medical Journal:

Sir: Inasmuch as the recent theories in respect to antitoxine inoculations are at variance with chemical and physiological laws, and, further, because they are not in accord with well-known physiological and clinical facts repeatedly brought to the attention of the medical profession during the past few years, I beg permission to direct the attention of your readers to the necessity of revising their opinions concerning the physiological rôle of antitoxine. Necessarily, this discussion will embrace a study of the function of nuclein in the animal organism, since antitoxine inoculations can not well be considered apart from nuclein medication.

Some years ago Professor Welch and Dr. Flexner, of the Johns Hopkins University, made a series of elaborate investigations to determine the rôle of diphtheritic poison in the anima economy. They first prepared attenuated solutions of the diphtheria bacteria which they injected into healthy rabbits, with the result that the animals died at the end of twenty-fou hours. In these cases some of the evidences characteristic of the diphtheritic poison were discovered on post-mortem investigation, but, as the time was so short, it is reasonable to assume that these evidences could not have been very marked. However, they took an equal quantity of the sterilized diphtheritic solution and injected it into other rabbits apparently in perfect health, and these animals died at the expiration of fourteen days, with all the characteristic evidences of diphtheritic invasion, although no bacteria were found. At these latter post-mortems it was found that marked changes had taken place in the kidneys, just as we observe in persons dead of diphtheria, and that there was fatty degeneration of the heart and liver, with more or less degenerative muscular changes; moreover, they found distinct indications of infiltration of the mucous structures throughout the body.

How does this evidence comport with the statement of Professor Henry Hun, in the current issue of your *Journal*, that "The injection of this serum is perfectly harmless; it can be injected in large doses, and exercises no influence on the temperature or on the kidneys or on the heart. There have been no unfavorable symptoms observed from its use"? In the same issue, Dr. J. Lindsay Porteous, who has had some unfavorable experience with the serum treatment, and is disposed to be conservative, says: "My own opinion, formed from a larger experience of the use of antitoxine, is, that a smaller dose should be given at a time, but given oftener, thus keeping up the antitoxine action continuously, and certainly reducing the pain of injecting a large quantity at once."

Has it never occurred to those who advocate the employment of so-called antitoxine that this substance is inappropriately named, and that it is, in fact, a toxine? It is certainly more of a toxine than the sterilized diphtheritic solution employed by Professor Welch and Dr. Flexner, because in preparing the diphtheritic solution for injection into the horse it must be exposed to the air in order to avoid sterilization. Such being the case, it must be apparent to the most casual observer that a modicum of the toxine passes through the horse, and is finally introduced into the body of the patient suffering from diphtheria. Whether this infinitesimal attenuation supports the homœopathic principle or not, I shall not stop to consider for the present, but that, through laboratory manipulation and subsequent introduction into the circulation of the horse, a true antitoxine is produced from a toxine is contrary to our interpretation of both chemical and physiological laws.

When we come to inquire into the rôle of antitoxine inoculations from either a chemical or a physiological standpoint, we are met with a problem exceedingly difficult of solution. Behring believes that the antitoxine inoculations contribute to the production of "defensive proteids," and that these defensive proteids, remaining in the blood serum, destroy the poisonous products resulting from diphtheria. It is upon this basis that we account for recovery from attacks of diphtheria as well as other diseases of microbial origin, or, rather, it might be said, where certain micro-organisms are known to be associated with disease processes. Roux, on the other hand, maintains that both immunity and cure are brought about through the increased cell resistance due to the introduction of the antitoxine, although no definite information is vouchsafed as to what particular cells are re-enforced—whether the nerve cells, the connective-tissue cells, the blood cells, or the epithelial cells.

Now, these explanations are exceedingly defective, because they are indefinite, but more especially because, in the practical adaptation of serum therapy, the methods of administration do not harmonize with chemical or physiological laws. It should be stated here, however, that the writer is not disposed to contend that serum therapy is not effective; neither does he wish to be classed with those who would undervalue the results thu far accomplished. The object of the present communication is to bring about a more rational view of this important form of medication, since it involves principles which hitherto have not been recognized; principles, too, which give fair promise of revolutionizing both our conception of disease and our methods of treatment. For example, according to Behring, quoted by Professor Welch, of Johns Hopkins University, $\frac{1}{33333}$ part of a grain of blood serum obtained from a horse rendered increasingly protected against tetanus for a period of two years is sufficient to protect a mouse weighing three hundred grains (five drachms). By a simple calculation this shows that the tetanus antitoxine is effective in the proportion of 1 to 9,999,900; or, in other words, that a single grain of this blood serum would procure immunity for, say, an animal like an ox or a horse weighing nearly fifteen hundred pounds. Again, antitoxine solutions are in the market which are stated to be effective in the proportion of 1 to 80,000, although it is now well known that corrosive sublimate, our most efficient antiseptic, is effective against spores in the strength only of 1 to 20,000. It is evident from the foregoing figures that the allegations for antitoxine can not be substantiated upon either a chemical or a physiological basis, and we must therefore seek elsewhere for an explanation of their *modus operandi*. If these antitoxines possessed a tithe of the antiseptic properties alleged for them—using the word antiseptic in its modern acceptation—it would be impossible to produce the new remedy under any circumstances whatever, since its production in the animal inoculated would promptly kill it.

I now turn to a consideration of the chemical and physiological properties of nuclein, a phosphorized proteid, probably the most effective of the "defensive proteids," a substance which is constantly produced by the multinuclear white blood-corpuscles in the human economy. Given a fairly well-nourished person with an attack of diphtheria, typhoid fever, or pneumonia, and we observe no alarming symptoms so long as nutrition is maintained by the usual methods. In diphtheria, barring septic infection by streptococci, the remedies that have been heretofore employed have given fairly good results in private practice. As soon as recovery is established, there is no danger of immediate reinfection, simply because the toxine of the disease, gradually taken into the system, has so increased the functional activity of these white blood-corpuscles that infection can not take place. And yet, notwithstanding the statements which have been advanced concerning the antiseptic and germicidal properties of nuclein solutions in a very large number of instances, it seems doubtful if this agent acts as either a chemical or a physiological antidote to the diphtheritic or any other poison—as we now understand chemical and physiological action. The remarkably small quantity of nuclein required to counteract diphtheritic invasion or to arrest the progress of the disease, whether simple diphtheria or complicated by sepsis, effectually precludes this conception of its powers. Had this topic been considered by Headland, he probably would have told us, as he did about arsenic, that it was a catalytic, and produced effects by its mere presence in the human organism. The writer is of the opinion that nuclein, in addition to its antiseptic and germicidal properties, enacts the rôle of a ferment; and he is also of the opinion that the so-called antitoxine acts in the same manner. The very fact that antitoxine is an admixture of toxine with nuclein—produced in the horse by the presence of this toxine—is sufficient to account for its supposed virtues in counteracting diphtheria. This toxine, although infinitesimal, seeks the usual outlets of the body, while the contained nuclein, enacting the rôle of a ferment, contributes additional powers to the white blood-corpuscles in their efforts to produce an increased supply of defensive proteids. Just as the thrifty housewife uses a penny yeast-cake in preparing half a dozen loaves of bread, so the physician, in treating diphtheria, pneumonia, typhoid fever, anæmia, malarial disease, and other disorders characterized by a disorganized state of the blood, introduces into the system a small quantity of nuclein to act as a ferment for the purpose of establishing an artificial leucocytosis.

In this connection it should be noted that the foregoing interpretation of the physiological rôle of nuclein is not the same as that which obtains in the administration of pepsin and pancreatin. Whether nuclein out of the body differs from it when in the circulatory apparatus and intercellular fluids, I am not prepared to say, but, while pepsin and pancreatin are given with a view to supply a substance that is wanting, nuclein, on the other hand, is administered in the belief that it acts as a stimulus, promoting cellular activity.

The communication would be incomplete without brief reference to the clinical results following nuclein medication. In diphtheria, for example, one of the first evidences of the morbid process is the presence of the exudation, and along with this we observe more or less swelling and tumefaction of the glands, a rise in the temperature, and an accelerated pulse-rate. Depending upon the ability of the white blood corpuscles to produce a sufficient quantity of the "defensive proteids" (nuclein), the invasion will be slow or rapid. The swelling and tumefaction are but local evidences of Nature's effort to destroy the bacterial products by sending an increased blood supply to the affected area. An examination of the blood at this stage would doubtless show a beginning leucocytosis. The increased secretion in all forms of throat affections is but another illustration of Nature's conservatism, her aim being to pour out a larger supply of blood serum, rendered antiseptic and germicidal by the presence of its contained nuclein, for the purpose of preventing absorption of poisonous products. When Nature's efforts fail, owing to impairment of the nuclein-producing capacity, this substance may be introduced artificially, in which case it appears to enact the rôle of a ferment. Certainly, no purely chemical or strictly physiological remedy can be designated which will create a more favorable impression upon this class of cases in so short a time. In diphtheria, unless the system is already surcharged with bacterial products, the temperature will be reduced to almost normal within the first twenty-four hours, and, except in isolated cases, there is no subsequent rise. Within the same period the membrane loosens and peels off without showing a disposition to form again. The best evidences of its virtues, however, are that it lessens the pain and thus enables the patient to take nourishment, two most important factors in conducting the disease to a favorable termination. For nearly three years the writer has been using nuclein solutions (prepared from the thyreoid and thymus glands) in a wide range of diseases, and his favorable experience has been repeatedly confirmed by the observation of others, all of which has now become a part of medical history; hence my reason for wishing to put the matter before the profession in its proper light.

John Aulde, M. D.

A FATAL CASE OF CHICKEN POX.

Cleveland, O., *January 8, 1895.*

To the Editor of the New York Medical Journal:

Sir: In the January 5th number of the *Journal* I read an article by Dr. Nisbet, taken from the *Australian Medical Journal*, which recalls to my mind most vividly a case very similar, occurring in my early experience, and for which I had found no parallel in medical literature until this case. Though very similar in many of its clinical aspects, the solution in my case is widely different, and challenges the propriety of entering the above-mentioned case on record as a death from chicken pox *per se*. I find on turning to my case-book for June, 1872, the following record, and memory recalls the case in all its details:

June 9, 1872.—Called to family of M. H. Find J. H., aged nine; H. H., aged seven and a half; S. H., aged five; M. M. H., aged two and a half; infant, aged one year—all in the eruptive stage of varicella. No symptoms calling for treatment beyond the ordinary dietetic restrictions and hygienic instructions were recognized, and, with the assurance that all would turn out well, the cases were dismissed.

12th, P. M.—I was recalled. Found all doing well save M. M. H., aged two years and a half. The eruption in his case was much more copious than at first visit, many of the pustules having developed into large vesicles with a tendency to become confluent, and contents somewhat dark. Temperature, 101·5°.

13th, P. M.—Vesicles increasing in number and size, and the surrounding areola assumed a purpuric hue. Is restless. Takes plenty of milk. Temperature, 102°. Treatment supportive and anodyne.

14th, P. M.—Eruption more confluent, particularly on back and thighs, and multiplying on mucous surfaces, lips, buccal cavities, and pharynx. Is restless and refuses food. Temperature, 102·8°; pulse, 120.

15th, P. M.—Eruption more copious, and back, shoulders, and nates are one great blister filled with a purpuric serum. Of the vesicles on mucous surfaces, many are broken, and from their surfaces exudes a darkish serum. The submucous connective tissues of post-pharynx are swollen and œdematous; bowels are loose; stools copious and watery. But little food has been taken; there is some thirst. Still restless. Temperature, 101·5°; pulse, 115. Treatment is now and has been with iron, quinine sulphate, and mineral acids, with camphorated tincture of opium enough to secure rest.

16th, A. M.—Patient passed a more quiet night than for several nights previous without much anodyne. Large vesicles on back have opened, leaving large, raw surfaces, and the epidermis is hanging loose in large flakes, and the denuded surface is pouring out much purpuric serum, rendering a frequent change of napkins necessary. The œdema of the throat continues somewhat aggravated. Patient rather inclines to somnolence, and asks for nothing; swallows with difficulty, and but little food or drink has been taken. Temperature, 98·8°; pulse, 99. Stimulants were ordered, but the trouble in swallowing prevented their use by the mouth, and they were given *per rectum.*

5 P.M. of same day.—The somnolence of morning had now developed into somewhat profound coma. Patient taking no nourishment or medicine. Pupils, somewhat dilated, respond but sluggishly to strong light; respirations regular, slow, and almost puerile. Local conditions not much changed, except that the back presented a more purpuric hue, as did the sores on mucous surfaces. The general appearance of the body, where not ecchymosed, was that of cyanosis. Temperature, 97·5°; pulse, 78.

It was very apparent that death would soon end the case, and the fact that I was about to lose a patient with or from chicken pox was very embarrassing to me in face of the fact that there was no precedent on record. The coma developed into profound stupor, and the respirations grew slower and noisier until 3.45 a. m. of the 17th of June, when he passed away quietly and without a struggle. I had recorded the death cause as chicken pox in case-book, and the only such case I had ever known. But I have since changed my solution of the case and modified the record. My little patient died, *not from chicken pox*, but from effusion or hæmorrhage into the subdural and arachnoidal spaces of the brain, and œdema of the glottis resulting from the *purpura hæmorrhagica* which complicated the initial trouble, *chicken pox*. I am content to leave this correction stand until I can conceive how uncomplicated chicken pox can result in death. The striking similarity between my case and Dr. Nisbet's, referred to, causes me to doubt the correctness of his conclusion as to the cause of death.

Nicholas F. Schwartz, M. D.

THE CASE OF MRS. MAYBRICK.

Dublin, *January 2, 1895.*

To the Editor of the New York Medical Journal:

Sir: You inserted some time since in your columns my letter to the *Liverpool Review*, in which among other things I objected to the medical evidence for the prosecution in the case of Mrs. Maybrick as not being purely medical. I was somewhat surprised to find this practically admitted and defended in the columns of one of the leading English medical journals, the *Lancet*. A physician, according to the *Lancet*, is quite justified in a case of difficulty in looking at "the evidence of motive and the general surroundings of the case" in forming his opinion as to "the most probable cause of death," and, I presume, in not telling the jury (unless asked the question) the grounds on which he formed it. This is a very serious question as regards medical evidence in criminal cases. The jury when listening to the evidence of motive and of the general surroundings of the case may imagine that they are hearing independent evidence confirming that of the doctors, when in reality they are hearing the grounds of the doctors' opinions.

This, however, is not all. The medical witness for the Crown gives his evidence at a stage of the trial when the prisoner's witnesses have not been examined. If he waited to hear them he might take a different view of the evidence of motive and the other surroundings of the case. But in fact he usually has not heard even the whole of the other evidence for the prosecution, and is dependent, not on sworn testimony, but on what has been told him by the relatives and friends of the deceased. One of the principal Crown witnesses in the Maybrick case not only derived his information from these sources, but obtained inaccurate information, as appears from his subsequent narrative in the *Liverpool Medico-chirurgical Journal*. When in attendance on Mr. Maybrick Dr. Carter states that he did not know that the deceased attributed the origin of his illness to "an overdose of aperient medicine." Who told him that? The evidence went to show that the patient ascribed it to an overdose from a totally different bottle. Indeed, when Dr. Humphreys was called in, on the day after the overdose, Mr. Maybrick complained of constipation, and the doctor ordered papaine-iridin as a mild laxative. There was no appearance of diarrhœa for a week afterward. But arsenic was found in this bottle of aperient medicine, though it was not in the prescription. Hence some one who wished to fasten the crime on Mrs. Maybrick told Dr. Carter that her husband had ascribed his illness to *that* bottle; and this was evidently one of Dr. Carter's reasons for concluding that Mr. Maybrick died of arsenical poisoning.

Again, I need hardly say that a fatal dose of arsenic would mean a much larger quantity in the case of a regular arsenic-eater than of an ordinary person. But when the medical witnesses for the prosecution were examined no evidence of arsenic-eating had been given, and indeed the evidence given at the trial on that subject was by no means so conclusive as it has since become. Therefore the doctors were ignorant of one of the most important "surroundings" of the case when they gave their evidence.

Dr. Carter, when asked why he fixed on the 3d of May (the day on which Mr. Maybrick forgot to take with him to his office the lunch which his wife had prepared for him) as the date of administering the fatal dose, gave this singular answer: "I had it on my mind." Pressed further, he said: "I was told that he was unable to retain anything on his stomach for several days" (afterward). This was certainly an exaggeration, and the doctor did not mention the morphine to which his colleague, Dr. Humphreys, ascribed the vomiting.

I hope the medical profession on both sides of the Atlantic will press for a public inquiry. There seems no doubt that there is a letter from Mr. Maybrick himself to his brother Michael, containing full details of his malady, that has hitherto been kept back.

A Barrister.

TABLES OF INTESTINAL OPERATIONS.

New York, *January 5, 1895.*

To the Editor of the New York Medical Journal:

Sir: Allow me to call your attention to the fact that in the January, 1895, number of the *Annals of Surgery*, in the course of some remarks on Gastro-enterostomy by the Murphy Button: Anastomosis by this Method, by Dr. W. G. Mayo and Dr. Charles H. Mayo, there appears a table which, with a few omissions and inaccuracies, is substantially a copy of the table which appeared in connection with my paper on Intestinal Anastomosis read before the New York State Medical Association on October 11th last and published in your *Journal* issued December 1st.

F. H. Wiggin, M. D.

A WARNING.

1309 Third Avenue, New York, *January 14, 1895.*

To the Editor of the New York Medical Journal:

Sir: Let medical gentlemen in the city beware of a genteel, fluent-spoken man of middle age who desires the doctor to come down to the East River to examine the crew of a bark just arrived from Brazil as to their health. For this service the doctor is promised ample payment by the ship's agents, as the ship came through the sound instead of passing quarantine, etc. Meantime the doctor is "braced" for a small loan, or the surroundings of his office are "taken in" by the stranger with the view to future robbery. I have been able to put several gentlemen on their guard within the last few days, as the "yarn" is very ancient.

Thomas Latham.

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of November 7, 1894.

The President, Dr. C. C. Barrows, in the Chair.

Suture of the Torn Cervix immediately after Labor.—Dr. W. R. Pryor read a paper with this title. (See page 71.)

Dr. Grandin said that it had been his practice to sew up the cervix primarily, and, so far as he could recollect, he had secured none but the best results. On the removal of the stitches he had found uniformly good union, and had not found that he had overstepped the natural boundary between the cervix and the vagina; and he had not observed that this primary operation had interfered with the drainage of the lochia, or that it had caused sepsis; but he had found that the parts had healed well, and that his patient had been very grateful to him for doing the operation at this time. It seemed to him that Nature would have made a woman with a split cervix if this was necessary to secure good drainage after labor. If there was a laceration of the cervix beyond the first degree, we were called upon, in his opinion, to repair that laceration just as we now repaired lacerations of the pelvic floor. In cases of hæmorrhage due to a rent involving the circular artery, it was, of course, a necessary operation. Primary repair of the rent was not at all difficult if it was done in a proper manner. If we attempted to do it with the woman in Sims's posture, we should meet with difficulty, but if she was put into the lithotomy posture, and the parts were brought into view with a volsella, there would be found no difficulty in inserting the sutures properly. It was easy to obtain good union, provided we did not introduce septic matter at the time of the operation. If we did this, we should not blame Nature for it, but only ourselves. If we took the precaution to tie the stitches tighter than in the secondary operation, we should be still more likely to get good union. Many physicians condemned primary trachelorrhaphy because they did not tie the stitches tight enough, and failed therefore to get good union. While, therefore, the author might be right, and while undoubtedly the influence of a lacerated cervix on the uterus had been greatly exaggerated, he still felt that we were called upon as honest men to sew up the tear. If the operation was done in a proper manner, as already described, we could determine the limits of the tear, and introduce the stitches easily; we could then go home with a clear conscience, and we could in this way often avoid unpleasant subsequent criticism on our work as obstetricians by gynæcologists and other fellow-practitioners.

Dr. J. Clifton Edgar said that about two years ago he had occupied about the position taken by the last speaker, but he had had since then an excellent opportunity of studying, in hospital, the repair of the lacerated cervix. He would like to give the history in outline, and exhibit the photographs of a case, the latter taken ten days after the operation. The patient had been a primipara, twenty-four years of age, who had been admitted last spring into the Emergency Hospital. The labor had begun at midnight of May 16th, and the child had been born at nine o'clock the next morning. As far as could be found out there had been no interference with this labor, except that the physician in charge, feeling that the membranes had ruptured rather early, and that the second stage of labor had been rather prolonged, had used compression of the fundus before the cervix had been fully dilated. This would seem to explain the bilateral laceration of the cervix. Immediately after the birth of the child the blood had come away in gushes. The placenta had been expelled, but the blood had continued to come in spurts. Examination had shown a laceration on one side, up to or beyond the vaginal junction, and a lesser laceration on the other side. The bleeding had been controlled by iodoform gauze. The patient had nearly collapsed from loss of blood, but had rallied promptly under the usual treatment. The speaker said that he had not seen her until eight hours later. At that time, she had had a fair pulse, and there had been some slight oozing from the vagina. The gauze had been removed and he had determined to perform primary trachelorrhaphy, using No. 3 catgut. Five small strips of iodoform gauze had been subsequently placed in the os to keep the canal open. The child had weighed about eight pounds. The puerperium had been practically normal. On the evening of the day of the operation she had had a temperature of 100·2°, the next day 100·3°, and from that time on the pulse and respiration had been practically normal, and the temperature had fallen to the normal point. The patient had been discharged from the hospital on May 30, 1894. No douches had been given after the operation. So far as could be made out from the history, the lochia had been normal. The photograph showed a rather large cervix and excellent union of the torn parts. The interesting feature of the case centered upon the involution, which had been poor. The uterus had been large and flabby at the end of eleven days. There might have been other factors in the case besides the primary trachelorrhaphy, but it had seemed to him that this was the probable explanation of the incomplete involution.

Dr. Robert A. Murray said that he believed that all the points mentioned in the paper could be answered in a very different way from that adopted by the author. Some years ago he had himself read a paper on primary trachelorrhaphy, and had drawn his conclusions at that time from the cases in which he had operated because of hæmorrhage. His first three operations had been done without any assistants, and with the ordinary materials found in a pocket case. The result had been absolutely perfect in these particular cases. He felt that the only lacerations which were to be sewed up were those which were quite extensive, and where there was hæmorrhage or danger of its occurrence. It was his practice to repair a perinæum, not only to restore the anatomical relations, but to prevent the patient from becoming septic. If sepsis could be a factor outside the vagina, why should it not be inside the vagina? It had been contended that primary trachelorrhaphy subjected the patient to additional risk of sepsis, but it should be remembered that if the tear was left ununited there was danger of septic material being absorbed. It should also be remembered that the passage of the lochia over these lacerated parts prevented them from healing, and this was true no matter how carefully and frequently the patient was douched. Indeed, he had been inclined to think that douching actually interfered with healing. He spoke with confidence on this point because for years in the Maternity Hospital it had been the practice to give douches, and since that practice had been discontinued the union in these cases had been just as good as formerly, if not better. In the primary operation the tissue would always be found œdematous and relaxed, and this would facilitate the operation of trachelorrhaphy. Unless the cervix was weakened, it would distend rather than tear. He preferred to use a tenaculum with only one point, for with this instrument it was very easy to hold the uterus in position, even though the hæmorrhage was so great as to prevent the guiding of the manipulations by vision. He had on several occasions demonstrated the fact that one could pull the cervix down to the vulva without making unsafe traction, and without using a Sims's speculum. He preferred to pass the sutures with a curved needle. The material for suturing should be of such a nature as not to be softened by the constant flow of lochia over the parts; hence he would always use silver wire or silkworm gut. If the cervix was properly repaired there could not possibly be any more interference with drainage than if no laceration had occurred. He recalled very well the author's having advocated the introduction of iodoform gauze to stop hæmorrhage. Was there any more risk from sewing up the lacerated cervix than from inserting the gauze? He had seen two women lose their lives because they had not been subjected to the primary trachelorrhaphy. One of the cases had been a right occipital posterior position at the Maternity Hospital, in which the forceps had been applied, and in which free hæmorrhage had occurred after delivery notwithstanding a very firm tampon in the vagina. When he had been called to see this patient he had removed this tampon, and had found and secured a spurting blood-vessel, but the patient had died in about six hours. In another case, in which he had first seen the patient in a moribund condition, she had been treated in the same way, by tampon, and had died. This had made a profound impression on him, and rather than make any such mistake, he would prefer always to sew up the tear in cases of severe hæmorrhage of this kind. Since then he had made it a rule in the hospital to sew up the tears in the uterus, and he thought there had been less subinvolution, and that the women had been able to leave the hospital sooner and in better condition than before. No matter what the skill of the obstetrician, tears would frequently occur; no obstetrician should be blamed for lacerations, but he should be blamed if they were not repaired.

Dr. W. Evelyn Porter said that he differed very radically with the reader of the paper. If the patient was given a hot douche and a dose of ergot after delivery, the internal os would be so well defined as to map out the limits of the uterine structure, particularly if the parts were drawn down into view. Dr. Pryor had limited the operation of primary trachelorrhaphy to hæmorrhage, but he had not stated the degree of hæmorrhage which he would consider to be a proper indication for this operation. The speaker's own practice had been to apply an ordinary aseptic pad, after giving a hot douche and ergot, and then to wait for a few minutes; if there was any considerable hæmorrhage, he resorted to this operation. If in the course of the labor he had reason to believe there had been much laceration, even though there was not much hæmorrhage, he would still resort to the operation, especially in view of the many cases of inflammatory disease and epithelioma of the cervix found in persons who had suffered from unrepaired cervical lacerations. The danger of the operation in the hands of the aseptic surgeon would be practically *nil*, and he thought that the difficulties of the technique had been greatly overestimated by the author. In cases needing perineal sutures as well, he preferred catgut for the cervix; otherwise silver wire or silkworm gut was better. He thought that if Dr. Edgar had used douches, ergot, and subsequently quinine, he would not have observed this subinvolution in the case reported by him.

The President said that he had long been interested in this subject. About five years ago he had read a paper in which he had reported nine cases of primary trachelorrhaphy. Since that time he had continued to close all important lacerations of the cervix immediately after labor. Where there was a large number of small lacerations, requiring so many sutures as to strangulate the tissues, he would not suture them. He had never seen any failure of union, or any serious result, and he had never experienced the slightest difficulty in inserting the sutures. He believed that there were many cases of laceration of the perinæum which should not be sewed up—as, for instance, where there had been a great deal of contusion of the parts. Such a condition did not exist as a rule in the cervix, hence he sewed up the lacerated cervix more frequently even than the lacerated perinæum.

Dr. Pryor said that, in the absence of hæmorrhage as an indication as to how deep to pass the suture, he would be at a loss in most cases to know just what tissues should be united. He had done the operation a few times for hæmorrhage only. The slighter degrees of bleeding were much better controlled by pressure. He could not say that he had seen cases made septic by sewing up the cervix immediately after labor, but he thought this might very easily occur. Civilization required that the average woman should marry many years after the establishment of the menstrual function, and come to her first labor with an hypertrophied cervix. After the puerperium, he believed in subjecting the cervix to amputation just the same as any other hypertrophied cervix which was found in sterile women. He objected especially to the introduction of another meddlesome operation into obstetrics, where already too little was left to natural forces.

Book Notices.

Difficult Labor. A Guide to its Management for Students and Practitioners. By G. Ernest Herman, M. B. Lond., F. R. C. P., Senior Obstetric Physician to the London Hospital, etc. With One Hundred and Sixty-two Illustrations. New York: William Wood & Co., 1894. Pp. xvi–443. [Price, $2.25.]

The author's experience as a practitioner and teacher of midwifery has suggested to him the desirability of a book that would give its reader more definite guidance in practice than is to be obtained from the average text-book. He has endeavored in this volume to indicate clearly the best way of dealing with each complication of labor, and he gives his reasons for such indications. He starts with the premise that labor is natural when the mother is in good health and the pelvis is of not less than normal size; when the child is living and of not more than normal size; when the vertex presents, and the child's back is in front; when the membranes do not rupture until the os is at least of three quarters its full size; when the placenta is implanted above the lower segments of the uterus, and is not detached until the child is born; and when uterine contractions and retraction go on at such a rate that the child is born within twenty-four hours from the beginning of the labor pains, and continue after the child is born. If these conditions are fulfilled, the patient would do as well without a doctor as with one, but it can never be foretold that they will be. So he describes in a clear, practical manner the various factors that produce difficult labor, and details the methods that must be employed to relieve them. The work is well written, and it is likely to prove useful to all students and practitioners of obstetrics.

Sexual Neurasthenia (Nervous Exhaustion). Its Hygiene, Causes, Symptoms, and Treatment. With a Chapter on Diet for the Nervous. By George M. Beard, M. D., A. M., formerly Lecturer on Nervous Diseases in the University of the City of New York. Edited, with Notes and Additions, by A. D. Rockwell, A. M., M. D., formerly Professor of Electro-therapeutics in the New York Post-graduate Medical School and Hospital, etc. Fourth Edition, with Formulas. New York: E. B. Treat, 1895. [Price, $2.75.]

The editor of this work has taken advantage of the appearance of a new edition to add a chapter on sexual erethism. The latter he considers either reflex, in consequence of peripheral or central irritation, or psychical, and he lays stress on the necessity of distinguishing these causes that are abnormal and pathological. Such patients he does not class with sexual perverts, of whom he says that, while a certain proportion would gladly be free from the chains that bind them and are eager for help, the larger proportion are as morally depraved as the followers of any other form of vice.

Unpleasant as these persons may be to the physician, there is no class to which he can render greater assistance, if judicious in his treatment and advice, than to the sexual neurasthenic.

Physiology for Beginners. By M. Foster, M. A., M. D., F. R. S., Professor of Physiology in the University of Cambridge, and Lewis E. Shore, M. A., M. D., Fellow of St. John's College, Cambridge, etc. New York and London: Macmillan & Co., 1894. Pp. ix–241. [Price, 75 cents.]

The authors state that this volume is intended for those who, without any previous knowledge of the subject, desire to begin the study of physiology. They have purposely written it in an elementary and didactic manner, in order that it may serve as an introduction to more advanced manuals, such as Professor Huxley's *Elementary Lessons in Physiology*.

While Professor Foster has supervised the work, and acknowledges his responsibility therefor, Dr. Shore is the principal author. The latter has based his instruction on the principle that has made his collaborator's teaching so successful—that of actually observing and studying physiological phenomena as far as is possible. The material required and the methods of investigation are plainly described, and there can be no excuse for neglecting such practical studies.

The scope of the work includes the physiology of the blood, the skeleton, the muscles, the circulation, the respiration, the digestion, the spleen, the kidney, animal heat, the nervous system, sight, hearing, and speech.

The book is an excellent work for use in high schools and colleges.

Pus et suppuration. Par le Dr. Maurice Letulle, professeur agrégé, médecin de l'hôpital Saint-Antoine. Avec 47 figures dans le texte. Paris: G. Masson, 1894. Pp. 6 to 196. [Prix, 2 *fr.*] [*Encyclopédie scientifique des aide-mémoire.*]

This volume is divided into two parts, the first devoted to a consideration of pus, the second treating of suppuration. The author has successively grouped the macroscopic, histological, and chemical characters of pus, a knowledge of which is essential to comprehend the features of suppuration. The pathological anatomy of suppurative lesions, their ætiology, with particular reference to pyogenic microbes, and their pathology with reference to pyogenic substances, are discussed with sufficiency and clearness. A final chapter is devoted to the general pathology of pyogenesis.

The book is written with the completeness characteristic of the accomplished author, and it is one of the most valuable monographs that have appeared in this series.

Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A Manual on the General Principles of the Science and their Applications in Medicine and Pharmacy. By John Attfield, F. R. S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, etc. Fourteenth Edition. Philadelphia: Lea Brothers & Co., 1894. Pp. xx–13 to 794. [Price, $2.75.]

The fourteenth edition of this work scarcely calls for notice, for no better recognition of its value could be mentioned than a statement of the number of editions in which it has appeared.

The Disorders of Speech. By John Wyllie, M. D., F. R. C. P. Ed., Physician to the Royal Infirmary, Edinburgh, etc. Edinburgh: Oliver & Boyd, 1894. Pp. viii–485.

Those who have followed the author's valuable papers that have appeared in the *Edinburgh Medical Journal* between October, 1891, and May, 1894, as well as those that have read various abstracts of these papers published from time to time, will gladly welcome the more permanent form in which they now appear.

The first part of this volume includes the papers on the functional disorders of the vocal mechanism, the second part treats of the development of speech and the developmental derangements, and the third part is devoted to speech in its relations to diseases of the nervous system. Each of these subjects is considered at length, and the text is illustrated with numerous diagrams and woodcuts. An appendix has been added containing the notes on three cases of speech disturbance and a reprint of a graduation thesis on the physiology of the larynx.

The volume is a useful addition to the literature of speech disorders.

Statistik der infectiösen Erkrankungen in den Jahren 1881–1891 und Untersuchung des Einflusses der Witterung. Von Josef Körösi, Director des Communalstatistischen Bureaus. Uebersetzung aus dem Ungarischen. Berlin: Puttkammer & Mühlbrecht, 1894. Pp. viii–141.

This volume gives the data relating to the existence of infectious diseases in Budapest during the decade 1882 to 1891, and the statistics for almost eleven months of the year 1881. The diseases included in the list are typhus and typhoid fevers, measles, variola, scarlatina, diphtheria, and croup. The reasons for the prevalence of each of these diseases are discussed, and their monthly prevalence during the service of years is indicated by a graphic chart that must have involved much labor.

Tables are also printed of the daily barometric register and the reported cases of infectious diseases. The volume is a valuable one to those interested in this important subject.

BOOKS, ETC., RECEIVED.

The Principles of Surgery and Surgical Pathology. General Rules governing Operations and the Application of Dressings. By Dr. Hermann Tillmanns, Professor in the University of Leipzig. Translated from the Third German Edition by John Rogers, M. D., New York, and Benjamin Tilton, M. D., New York. Edited by Lewis A. Stimson, M. D., Professor of Surgery in the University of the City of New York, Medical Department. With Four Hundred and Forty-one Illustrations. New York: D. Appleton & Company, 1894. Pp. viii–800. [Price, $5.00.]

Diseases of the Ear. A Text-book for Practitioners and Students of Medicine. By Edward Bradford Dench, Ph. B., M. D., Professor of Diseases of the Ear in the Bellevue Hospital Medical College, etc. With Eight Colored Plates and One Hundred and Fifty-two Illustrations in the Text. New York: D. Appleton and Company, 1894. Pp. xxii–645. [Price, $5.]

The Physiology of the Carbohydrates; their Application as Food and Relation to Diabetes. By F. W. Pavy, M. D., LL. D., F. R. S., Fellow of the Royal College of Physicians, etc. London: J. & A. Churchill, 1894. Pp. x–280.

Sexual Neurasthenia (Nervous Exhaustion). Its Hygiene, Causes, Symptoms, and Treatment. With a Chapter on Diet for the Nervous. By George M. Beard, M. D., A. M., formerly Lecturer on Nervous Diseases in the University of the City of New York. Edited, with Notes and Additions, by A. D. Rockwell, A. M., M. D., formerly Professor of Electro-therapeutics in the New York Post-graduate Medical School and Hospital, etc. Fourth Edition with Formulas. New York: E. B. Treat, 1895. [Price, $2.75.]

The Uric-Acid Diathesis. Gout, Sand, and Gravel. By Dr. F. Levison, Kreisarzt in Copenhagen. Translated from the German, and edited by Lindley Scott, M. A., M. D., Aberd. Cassell and Company, Limited: London, Paris, and Melbourne, 1894. Pp. 11 to 152. [Price, 3*s.* 6*d.*]

Helps in Sickness and to Health. Where to Go and What to Do. Being a Guide to Home Nursing and a Handbook to Health in the Habitation, the Nursery, the Schoolroom, and the Person. With a Chapter on Pleasure and Health Resorts. By Henry C. Burdett. With Nineteen Illustrations. London: The Scientific Press, Limited, 1894. Pp. xv–484. [Price, 5*s.*]

Manual of Practical Morbid Anatomy. Being a Handbook for the Post-mortem Room. By H. D. Rolleston, M. A., M. D., F. R. C. P., Fellow of St. John's College, Cambridge, etc., and A. A. Kanthack, M. D., M. R. C. P., Lecturer on Pathology at

St. Bartholomew's Hospital. Cambridge: The University Press, 1894. Pp. xix–240. [Price, $1.60.]

Fourth Report of the State Board of Health of Colorado, including the Reports for the Years 1892, 1893, and 1894.

Position in the Treatment of Elbow-Joint Fractures. An Experimental Study. By H. L. Smith, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal.*]

A Vesical Detrusor Center in the Cerebral Peduncles. By Isaac Ott, M. D., Philadelphia.

Removal of the Head of the Femur from the Lesser Sciatic Notch. By B. Merrill Ricketts, M. D., Cincinnati, Ohio. [Reprinted from the *Times and Register.*]

Castration for Hypertrophied Prostate. By B. Merrill Ricketts, M. D. [Reprinted from the *Times and Register.*]

The Removal, by Trephine, of Fluid as the Result of Acute Cerebral Meningitis, with Report of a Case. By Merrill Ricketts, M. D. [Reprinted from the *Times and Register.*]

The Interrelation of Some of the Local Spasms of Early Life. By Rosa Engelmann, B. A., M. D. [Reprinted from the *Journal of the American Medical Association.*]

A Plea for Aseptic Vaccine Virus and Aseptic Vaccination, with a Case in Point. By Rosa Engelmann, A. B., M. D. [Reprinted from the *Journal of the American Medical Association.*]

A Contribution to the Study of the Accidents of Vaccination. By Rosa Engelmann, B. A., M. D. [Reprinted from the *North American Practitioner.*]

Miscellany.

Bromide of Ethyl.—The *Boston Medical and Surgical Journal* for December 20th contains an article on this subject by Dr. Charles Greene Cumston, in which he remarks that it is very important not to employ the bromide of ethylene, as it is a very toxic substance, only slightly volatile, and a bad anæsthetic. The bromide of ethyl, however, is a very volatile liquid, its boiling point being 110·3° F. It burns with difficulty, and its density is 1·40. When ready for administration, the liquid should have the following properties: 1. It must be extremely volatile; when poured on the hand, it should evaporate completely and rapidly without leaving any deposit. 2. It must be colorless; if it is of a yellowish color, it is decomposed, and a little bromine has been set free, which would irritate the respiratory tract. 3. Its odor must be sweet and ethereal.

The purity of the drug depends on the mode of its preparation and on the manner of preservation. The only correct way of preparing it is "by decomposing alcohol of wine by sulphuric acid in presence of bromide of potassium, and afterward rectifying it by distillation on oil of sweet almonds." Light, dampness, and contact with air decompose it, and it should be kept in tubes hermetically closed with a flame.

Narcosis by this drug is similar to that of chloroform; both act on the brain, then on the medulla, and lastly on the bulb. Chloroform chemically irritates each center before it paralyzes it, but the bromide acts directly; consequently there is no excitement, and no laryngeal reflex is to be feared. It is also a vaso-dilator; it produces congestion of the head, and thus no syncope is to be feared, even if the patient is in a sitting posture—so necessary in certain operations on the throat.

The dose of bromide of ethyl varies according to the age of the patient. In children, the author employs from a hundred and eighty to two hundred and twenty-five grains; for children over twelve years of age and for adults, from two hundred and twenty-five to three hundred and seventy-five grains may be given, according to the constitution of the subject. The patient should be ordered emphatically to take nothing to eat, not even a glass of milk, on the morning of the operation. The mask should cover the mouth and nose perfectly, and no air be allowed to enter; on this point the author insists. The entire dose should be given at once. A period of from twenty to thirty seconds is sufficient in which to produce sleep, and the operator should be ready to begin as soon as narcosis is complete. The insensibility lasts from two to three minutes, sometimes a little longer. When narcosis is complete, the mask should be removed, and under no consideration should it be applied again.

All short minor operations can be done during narcosis with this drug. Superficial tubercular glands can be removed, abscesses opened, etc. Narcosis with this drug is particularly eligible when an examination of the pelvic organs is to be made or a pessary introduced, as it completely relaxes the abdominal muscles, thus permitting of easy palpation. No disagreeable odor remains in the room, and the patient may enjoy his breakfast without nausea or headache.

Dr. Cumston gives the following rules as to the administration of this drug: 1. Bromide of ethyl should be carefully distinguished from the bromide of ethylene. 2. Employ only a pure and, if possible, a freshly made preparation. 3. Give the drug only *en masse*, as some patients have died from small and continued doses. 4. Do not prolong the administration over one minute. 5. Once the mask is removed and the operation begun, do not apply the mask again. 6. The contraindications are dangerous lesions of the heart and lungs, as well as of the kidneys.

A Method of Trephining.—The January number of the *Edinburgh Medical Journal* publishes an article by J. M. Cotterill, M. B., F. R. C. S., Ed., in which he remarks that the plan adopted for some years past of replacing the whole discs of bone removed by the trephine or of cutting up the discs into several fragments and planting these over the exposed surface of the dura mater is open to objection. The various heteroplastic methods also have, he says, scarcely justified their existence, for the results are insufficient and frequently very unsatisfactory. Any plan, then, which will admit of free access to the brain without the disability of a large actual or imperfectly closed opening in the skull would appear to be very desirable. Various modifications, says the author, have been proposed by Bruns, Toison, and others, but none of them appear to him to be simpler or more effectual than the plan which he had used before studying their methods, and that he describes as follows: 1. Select as the base of the proposed flap a part of the scalp carrying large vessels, *e. g.*, in front the supra-orbital, at the side the temporal and its branches, and posteriorly the occipital. 2. Make two small V-shaped incisions corresponding to the lower ends of the Ω-shaped incision, their angles looking toward each other. Carry these incisions down to the bone and strip off the pericranium from a surface of the skull of about the size of a sixpence. 3. Apply a half-inch trephine at each of these points, and take out the two small discs of bone. 4. Pass a periosteum-scraper from one of these two trephine openings to the other between the pericranium and the skull, making a little tunnel. 5. Pass a fine saw (metacarpal) along this tunnel, and saw through the neck of bone lying between the two trephine openings, cutting down only to the level of the inner table. This can easily be done, as the difference between sawing the diploe and sawing the inner table is quite palpable. If necessary, a curved director may be passed under the bone to protect the brain and dura mater. The author prefers to do this part of the operation first, as he finds that one is much less likely to disturb the relation of the flap of the soft parts to the bony flap than if it is done at a later stage in the operation. 6. The Ω-shaped incision through the scalp is then completed, the flap being made of any size or shape that may be thought necessary. The pericranium is divided all around this line of incision through the scalp, great care being taken not to dislodge the soft parts unnecessarily from the bone. 7. The circular saw is then applied around the circumference of the bony flap to be lifted up, and the saw should be applied obliquely from without inward, at the expense of the outer table, so that when the window of bone is replaced, it may be prevented by the projection of the inner table from sinking below the level of the rest of the skull. Although not absolutely necessary, it facilitates the use of the saw in getting around the corners, to take out two small discs of bone with the half-inch trephine at the upper angles of the flap. It may appear to complicate the operation to have to make four trephine openings, but, as a matter of fact, a half-inch trephine makes a very small hole, and perforates the skull very much more quickly and easily than a larger instrument. 8. The flap of bone is then gently lifted up with four elevators, and the inner table will be found to crack across at the neck with absolute precision along the line at which the outer table and diploe have already been divided with the saw. The flap of bone being held back, the dura is, if necessary, opened in the same direction as the rest of the incisions, sufficient edge being left to enable the operator to stitch it back into position when the operation is over.

In the cases in which the author has performed this operation the flap of bone has united satisfactorily, and firm union, partly fibrous, partly osseous, has taken place all around the line of incision, while there has been absolutely no roughness on the inner surface, and at post-mortems there has not been found to be any adhesion of the dura to the skull opposite the incision—a most important point.

This form of operation, says the author, is not applicable in every case of trephining. It is only of use where a large opening must be made in the skull for purposes of diagnosis or for the removal of large cerebral tumors or diseased portions of the brain. It might also be useful in dealing with intracranial hæmorrhage, as it would probably afford better access to the wounded vessel than the old operation. Where it is found that the first flap of bone lifted up does not give sufficient room for the removal of the tumor, etc., there is nothing to prevent a second flap from being taken up in a similar manner from the lateral aspect of the original opening. The operation, says Mr. Cotterill, is neither tedious nor difficult. The first time he performed it, the patient was off the table in thirty-five minutes from the beginning of the operation.

The Treatment of Diphtheria with Antitoxines prepared without the Aid of the Animal Organism.—The *Gazette hebdomadaire de médecine et de chirurgie* for December 15th publishes an article on this subject by Dr. G. A. Smirnoff, of St. Petersburg. The researches of late years, he says, relative to the antitoxic properties of "vaccinated" animals have left the question of the modifications which the serum undergoes under these conditions an open one. One may ask, he says, if the elaboration of toxines is accomplished according to ordinary chemical laws, and may, in consequence, be effected without the aid of the animal organism, or whether it is a question of a strictly biological phenomenon the reproduction of which, independently of the animal organism, will be impossible. While the majority of authors believe in a strictly biological process, Emmerich, Tsuboi, and Loew have found that the bactericidal properties of the serum from "vaccinated" animals are in the albumin and not in the globulin. Tizzoni and Cattani also have found that the properties of the antitetanic serum are in the albumin and not in the globulin of the antitoxic serum. As, in a general way, the processes of biological chemistry are subject to the ordinary laws of oxidation, of decomposition, and of reconstitution, Dr. Smirnoff undertook a series of experiments in order to see if it was not possible to confer therapeutic properties on ordinary serum by submitting it to the action of chemical bodies.

The first experiments, which consisted in submitting the serum to a process of oxidation and afterward injecting it into animals, gave distinctly negative results. In rabbits this serum did not provoke any general reaction or any rise of temperature. In other experiments the serum was subjected to electrolysis, and more encouraging results were obtained. When a certain quantity of dog serum was subjected to electrolysis the first phenomenon observed was the formation of gas around the two poles. But, while flocculi of albumin formed in the tube which inclosed the negative pole, and the liquid became turbid, the serum in which the positive pole was plunged remained clear and transparent, and no albumin was precipitated. Under the continued application of electrolysis the flocculi of albumin that had formed around the negative pole became dissolved. If the reaction of the liquid is examined at this moment, says the author, it will be found that it is very acid around the negative pole and very alkaline around the positive pole.

The injection of electrolyzed serum, of alkaline serum, or of acid serum does not provoke any reaction in rabbits. But, if the acid serum is neutralized in such a manner as to give it a feeble alkaline reaction, or if a small quantity of acid is added to the alkaline serum, it will be found that the two, in subcutaneous injection, provoke a very distinct reaction. The alkaline serum, as well as the acid serum, in a dose of a cubic centimetre produces in rabbits an elevation of temperature which begins from two to three hours after the injection and reaches its maximum, 104·9° F., from five to six hours later. Animals injected with this serum do not show any other morbid symptoms.

Ox serum treated in the same way produces the same symptoms as the dog serum does, but the elevation of temperature that it provokes is less pronounced.

In order to ascertain to what part of the serum the thermogenic action was attributable, Dr. Smirnoff made a series of experiments with ox serum deprived of its globulin. As the liquid obtained, which contained albumin, was deprived of its salts, the author added a solution of sodium chloride until the liquid contained 0·5 per cent. of the chloride, and then submitted it to electrolysis. The acid serum was then alkalinized and the alkaline serum acidulated, and an injection of each was administered to rabbits. The action of this serum deprived of its globulin was the same as that of the dog serum that had been simply electrolyzed. The check experiments made with a solution of globulin that had been subjected to electrolysis gave completely negative results. This showed, then, that the thermogenic properties of the serum after electrolysis were dependent on the modifications that the albumin had undergone, and confirmed the opinion held by Emmerich, Tsuboe, Cattani, and Tizzoni.

With regard to the curative or "vaccinal" properties of electrolyzed serum in certain cases of experimental infection, says the author, the researches made in this direction on animals infected with anthrax, with diphtheria, and with rabies gave completely negative results. But, as the preceding experiments showed that electrolysis acted, above all, on the albuminoid substances, Dr. Smirnoff questioned whether it was not possible to transform by the same method the toxines developed in the serum into antitoxines, and, in order to settle this point, he made some experiments with diphtheritic cultures sown on the serum, on a solution of albumin, and on a solution of globulin. He was able to ascertain at first that the bacilli became very well developed in the serum and formed extremely active toxines of such a nature that five cubic centimetres of a culture fifteen days old was sufficient to kill a guinea-pig in from twenty-five to thirty hours. The toxines of the albumin cultures were less active; the globulin cultures appeared to be entirely deprived of toxines, and the bacilli themselves lost all their virulence at the end of a certain time.

The experiment had then been made only with serum and albumin cultures that had been subjected to electrolysis in the same way as the serum, and the liquid around each pole was brought to a feeble alkaline reaction, as in the preceding experiments, then filtered and injected into the animals. It was at once ascertained that the cultures lost a large part of their toxines under the influence of electrolysis. For instance, a rabbit that had been injected with five cubic centimetres of a culture a month old died at the end of seventy-two hours, while another rabbit injected with the same quantity of the same culture that had been previously electrolyzed for six hours, survived after presenting gangrene of the skin at the point of injection.

Experiments on rabbits infected with virulent cultures and treated by injections of dialyzed cultures immediately, or two or three hours after infection, showed that the dialyzed cultures possessed very marked curative properties, whereas the test animals succumbed regularly to diphtheritic infection. The animals treated with electrolyzed cultures either survived or died much later than the test animals.

In order to ascertain whether the variableness of the results did not depend on the fact that the toxines of the serum and the albumin cultures—and consequently the antitoxines which they produced under the influence of electrolysis—were less active than the toxines made in bouillon, the author made some experiments with cultures on bouillon which he afterward subjected to electrolysis. Rabbits were infected with virulent diphtheritic cultures, then, when at the end of twenty-four hours the first symptoms of infection appeared, an injection of from eight to ten cubic centimetres of a dialyzed culture was made. Under these conditions one injection often sufficed to bring about recovery at the end of several days. In a general way, says Dr. Smirnoff, it was ascertained that it was better to inject in the beginning a strong dose of an electrolyzed culture than to treat the infected animal with repeated injections of small doses.

Bicycling for Women.—Dr. Robert L. Dickinson contributes an interesting article on this subject to the January number of the *American Journal of Obstetrics*, in which he says that among the most difficult questions which present themselves daily is the problem of prescribing exercise. So unused is the average woman to exercise that muscle work for its own sake presents none of the delight and afterglow which men usually get from it. To her the gymnasium often means dull routine; the bowling alley means broken corset bones under a one-sided, sudden strain; dancing is done in a bad atmosphere, in unsuitable dress, during sleeping hours; and horseback-riding, especially at a trot or with the close seat, is a jolting of the pelvic organs, with their supports stretched tight by the snug corset that the tailor-made habit demands. Only the summer presents, in the various sports, a means for the development of muscular energy whereby much good may be accomplished.

Bicycle-riding, says the author, has certain advantages over the present style of horseback-riding. The fashionable contorted seat does not develop the body symmetrically, although, when women get into the habit of riding part of the time with the stirrup on the right side and part of the time with the stirrup on the left side, one objection to the spinal rotation and the asymmetrical development will be overcome. However, he thinks that cheapness, safety, accessibility, and the small amount of preparation required are in favor of the wheel, in a greater degree even for women than for men.

With regard to the sewing machine, the question has often been asked why women are advised to ride the bicycle while they are warned against the sewing machine. Dr. Dickinson thinks that the conditions under which the two forms of exercise are taken vary radically. A woman at the sewing machine, he says, must stoop to focus her eyes accurately on her work, and such a posture in the corseted woman brings a strong pressure to bear on the pelvic contents by means of the lower part of the metal front-pieces of the corset. This is illustrated in Dr. Dickinson's article by a cut showing the pelvic inlet nearly horizontal, and pressure from the corset steels gaining free access to the pelvic organs. The action of the legs also is a distinctly constrained one, and the indoor motion is a series of very short excursions in rapid succession, while the road machine calls for a full, slow sweep of the whole leg. If a woman rides a bicycle, stooping well forward while dressed in a snug corset, with her saddle far back, so as to be obliged to thrust forward on her pedals, the conditions are somewhat analogous to those under which she works at the sewing machine. She should wear loose body clothing and sit upright, so that her weight is borne largely on her tuberosities, with a level saddle fairly well forward; then the thrust is chiefly downward, the increased intra-abdominal pressure is lacking, and all the objectionable features are eliminated, except the proneness to excessive indulgence. The effect on the circulation will be that of any general exercise; therefore the pelvis will undoubtedly be subjected to a much-increased rapidity of circulation, and the whole of the pelvic floor and the organs above it will receive a well-defined stimulus, and by degrees a permanently increased tone, from regulated riding.

In bicycling there seems to have been found at last, says Dr. Dickinson, a form of outdoor muscle work which attracts women and entices them to many hours in the open air. It possesses all the advantages of walking or climbing, and it exercises a large number of muscles; therefore it seems to the author that there is no single exercise that will so efficiently develop muscular tone in the pelvic floor as this. Dr. Dickinson cites some cases illustrative of this, and gives a cut with two tracings from the same patient showing the difference of her profiles with and without a loose corset. Nearly all the objections to the use of the corset raised by medical men involve the supposition that whatever straining the pelvic contents are subjected to must necessarily be under a snug corset and with the woman bending forward. It has been seen that these are distinctly hurtful conditions, although, says the writer, some women no doubt have suffered no harm from it. To direct, however, that the corset should be taken off, leaving a narrow girdle of pressure, does as much physical harm as it does good, and to replace the corset by a health-waist is to make an improvement of relatively small value, although the rigid front steels, the most harmful factor in the corset, will be banished. The author is convinced, from his own studies, that the health-waist should not be countenanced except as a temporary expedient where the breasts are large or flabby.

There has been made, he says, a very grave objection, which, if well founded, should induce us to be exceedingly cautious in suggesting this exercise. It has been said to beget or foster the habit of masturbation. It is perfectly conceivable that under certain conditions this habit could be engendered, but, if the rider sits upright and has her saddle moderately tight and fairly level, the weight rests upon the buttocks, and there is anatomical reason to believe that this posture will diminish erotic tendencies, and that with proper precautions there is very slight danger of the habit being started or fostered.

Under proper conditions of costume and posture, with care that the exercise is increased gradually and properly graded for individual cases, and where there is no acute inflammation to contraindicate it, bicycling will probably show itself capable of large results as an agent in curing pelvic disorders, since it is one of the few exercises which attract women. It seems hardly too much to say, says Dr. Dickinson, that the promise from the bicycle is far-reaching. Through it and the habit it will engender we may look for better and freer dress and shorter dress in bad weather, for better exercise, for out-of-door activity, for steadier nerves, for stronger muscles, for painless periods, and for easy labors.

The Newer Antipyretics; Acetanilide and Phenacetine; their Drawbacks.—The *British Medical Journal* for December 22d contains an editorial on this subject in which the writer says that, although acetanilide is one of the most efficient antipyretics, it is not altogether free from the objections attached to other drugs of the aromatic series. It induces symptoms of intoxication more frequently, perhaps, than any of the others, and they are at times more alarming. Its action on the nervous system is similar to that of antipyrine, and its power of lessening pyrexia is even greater. The fall of temperature is usually accompanied by a more or less profuse perspiration, and it may attain its maximum in two or three hours and finally bring on depression and collapse; sometimes a rebound is ushered in with chilliness and rigor. On the other hand, says the writer, a few reports show that this drug, like antipyrine, may send the temperature up in an unexpected way; its action on the heart may be very pronounced, and the utmost care is necessary in its administration to children and weakly individuals. There is a difference of opinion as to whether the depressive action attains the same degree as that following the employment of antipyrine. With the exception of miliaria produced by copious diaphoresis, bad effects on the skin rarely show themselves. An impression exists that acetanilide may induce or increase bronchial catarrh in children, although there is no evidence that it does so in greater measure than antipyrine; cyanosis is, however, more striking, as it may appear as the result of very small doses and persist for days after the use of the drug has been discontinued. Its prolonged administration, even in moderate doses, may give rise to a decided state of anæmia; the onset of this is often rapid and it may reach a considerable degree. Gastric disturbance is not prominent, impaired appetite and nausea being only occasionally noticed.

The doses of acetanilide as an antipyretic vary from five to ten grains for an adult; for a child three years of age one grain may be given, and for children from ten to fifteen years of age the dose is from three grains to four grains and a half; it should generally be combined with a stimulant. Its power as an analgetic is slight.

With regard to phenacetine, says the writer, its freedom from ill effects has been somewhat justified by experience; nevertheless, we may meet with unpleasant and profuse diaphoresis, rendering its habitual use in phthisis and typhoid fever undesirable. Collapse and exhaustion are not unknown even after moderate doses, while palpitation and oppression of breathing followed by nausea and vomiting have also been observed. Cutaneous eruptions, chiefly urticarial, prevail with a frequency scarcely inferior to that observed in the employment of antipyrine, and cyanosis of the face, due to changes in the hæmoglobin, may be seen in a similar degree. Its use as an antipyretic remains small, as its power in that respect is not equal to that of the others, except when it is employed in doses that very often give rise to toxic symptoms.

The important question of impurity and adulteration should not be lost sight of in considering the ill effects of any drug. Many of the toxic symptoms of acetanilide so closely resemble those of aniline poisoning as to suggest the production of that substance in the blood. There is a close relationship between the two bodies, and there is therefore some ground to suspect the occasional presence of aniline in samples. Phenacetine may be adulterated with phenetidine, a poisonous substance which, in small doses, brings on kidney trouble.

The question of antipyresis hinges lagely upon the important fact that a persistence of high temperature implies serious consequences to the heart muscle; on the other hand, we gather from clinical evidence that a fall in pyrexia is followed by marked relief of the patient's general condition. An ideal antipyretic, according to Liebermeister, says the writer, would be one that limited the production of heat, and it is alleged for the antipyrine group that such is their action, "repressing thermogenesis and simultaneously rendering heat dissipation more efficient." Gottlieb urges that an antipyretic of the antipyrine group should be given when it is desirable to procure a reduction of high temperature rapidly and safely, and to reserve quinine (which, he holds, lessens heat production and is a true antipyretic) for a more prolonged administration. To some extent, says the writer, the therapeutical application runs upon the lines of this generalization, for quinine continues to be the febrifuge most favored in the hectic state, and antipyrine and acetanilide may be reserved for sudden accessions of temperature of short duration. The prevalence of heart failure among the ill effects of the antipyrine group enjoins the necessity of caution where the cardiac organ suffers. The study of the ill effects of drugs is of great importance to therapeutics, and much can be done in the way of prophylaxis if they are kept prominently in view. Perhaps in the future they will receive increased attention, and something may be done to establish the employment of antipyretics on a more definite basis.

The Academy of Stomatology, of Philadelphia, a new association of dental practitioners, has been organized for the purpose of investigating and studying all matters connected with the mouth, its functions in health, and their aberrations in disease. The academy, we learn, already numbers among its members a majority of the most active and advanced dentists of Philadelphia, men who have the best interests of dentistry at heart, and who energetically forward the work of dental professional progress to the best of their ability and means. The academy has secured a handsome suite of rooms for its exclusive use in the holding of its meetings, clinics, etc. In connection with these a dental library and museum is being established, together with a reading room, where it is proposed to keep on file all the leading dental periodicals of the world. The reading room and museum will be open to members at all times during the day and evening, and it is expected that the facilities thus offered for consulting the periodical literature of dentistry will be largely patronized by the profession of Philadelphia and vicinity. The ultimate purpose of the academy is to establish a library and museum related to stomatology which will be consulted by dental practitioners throughout the entire country.

The New York Academy of Medicine.—At the last regular meeting, on Thursday evening, the 17th inst., the valedictory address was to be read by the retiring president, Dr. D. B. St. John Roosa, and the inaugural address by the new president, Dr. Joseph D. Bryant.

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 21st inst., the following papers will be read: A Case of Optic Neuritis following Scarlet Fever, by Dr. F. E. D'Oench; A Contribution to the Pathology of Embolism of the Central Artery of the Retina, with a Microscopic Demonstration of the Specimen, by Dr. Wilbur B. Marple. There will be a presentation of patients, specimens, and an ophthalmoscopic demonstration slate.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 23d inst., a paper will be read by Dr. R. C. Myles the title of which is yet to be announced. Cases will be presented, and there will be an exhibition of instruments and apparatus.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 24th inst., the following papers will be read: Symphysiotomy in a Tenement House, with a report of a Case, by Dr. H. L. Collyer; Laceration of the Sphincter Ani during Labor, by Dr. R. L. Dickinson. There will be a presentation of specimens and instruments, also reports of cases.

An American View of the Medical Department of the British Army.—The *British Medical Journal* for December 29th contains a notice of an abridgment of Lieutenant-colonel A. A. Woodhull's report on the medical department of the British army as observed by him in 1891. The *Journal* says:

"The abridged report, extending to one hundred and sixty pages, is so comprehensive that we can form some idea of the elaborate character of the full official report; indeed, the abridgment is such an admirable summary of the organization and regulations of our army medical department that it might be perused with advantage by the medical officers themselves; every point almost is reviewed with surprising accuracy, and any misstatements are of the most trifling character.

"We have always been struck with the general excellence of reports issued by the War Department of the United States, both as regards matter and form. It would seem in America that when a competent officer is selected to report, he is allowed a free hand as to scope, style, and length; his work is apparently not mutilated by superior intelligence at headquarters nor cut down by a stingy printing office.

"We are, of course, chiefly interested in Colonel Woodhull's running criticisms, which give us a glimpse of ourselves as 'others see us,' and are invariably marked by a friendly frankness. His report suggests so many interesting points for comment that it is with reluctance we are compelled to notice only a few.

"On our army medical establishments generally he remarks that numbers, designation, rank, pay, retirement, etc., are not fixed by 'law,' by which we suppose he means statute, but by royal warrant, while the whole rests indirectly on an annual vote or appropriation for the army. This arises from the constitutional fiction that a standing army is a menace to civil liberty, and may be dispersed any year by a vote of the Commons; but although the rights of our soldiers seem to rest on such a shaky and ridiculous foundation, the balance is redressed by giving royal warrants the force of law, although seldom interpreted in a court of law.

"On voluntary retirement in the medical service, he states: 'This voluntary renunciation of active service makes promotion relatively rapid, but at the same time the army loses many trained men in the prime of life, and the sentimental attachment to the service, which is a considerable element of efficiency, is liable to be weakened.' But he apparently overlooks the very different conditions of our army, and especially medical service, largely in unhealthy foreign climates, from those of the United States; with us the privilege of voluntary retirement even in the prime of life is only the unavoidable alternative of wholesale sick leave and invaliding.

"On our 'Morning Sick Report' he remarks, probably in contradistinction to procedure in his own army, that it is 'not signed by any officer, and there seems to be no obstacle to any soldier who desires coming before the medical officer.' That is so; our assumption is that the medical officer is the best, indeed the only competent judge as to whether a declaration of sickness be well founded or otherwise; but Colonel Woodhull does not seem to infer that our easy access to a medical officer encourages scheming; for he states from personal observation in our inspection rooms: 'I was impressed with the rigor exercised in taking up men as sick. Soldiers that I should not have hesitated to excuse were summarily marked "medicine and duty," and so disposed of.'

"Colonel Woodhull evidently considers our married roll absurdly large, for he declares it is 'enormous, judged by any ordinary measure of a combatant force.' Attendance on the families of soldiers not on the married roll being voluntary, and left to the good will of our medical officers, he remarks: 'According to my observation, such voluntary attendance, although a very great tax on their (medical officers') time and patience, is freely rendered and much appreciated.' We heartily indorse this, all the more that the detractors of our medical officers never mention such voluntary and kindly labor, but represent that their time is engrossed with too purely military functions to the neglect of the professional.

"Our 'stations' correspond to the 'post' hospitals of the American army; yet another example of the invincible repugnance to the word station in that country, where it is always supplanted by some synonymous term.

"The temporary employment of hospital orderlies from the ranks is common with us, but, he mentions, is prohibited by 'law' (? regulation) in the American army, which is probably judicious in view of the small fighting force of that army.

"The system of our hospital dietary is essentially different from the American; ours is based on individualism, with personal stoppages, theirs on collectivism, with the whole on a general debit and credit account. They have two classes of hospital diets, full and special. The former is supplied in bulk for twelve men daily, with a varied and liberal bill of fare for each day in the week; the special is, of course, ordered to individuals, and embraces a long catalogue of articles, among which 'stewed oysters' and 'broiled ham' will tickle the fancy of our medical officers.

"In view of our continuous service in all parts of the world, he thinks our medical history sheets useful documents; but they would be superfluous in America, as the information they afford is concentrated in a hospital register at Washington.

"Concerning recruiting, he somewhat erroneously states that attestation is 'effected by a civil magistrate, not a military officer'; that was so up to ten years ago, but is now only true of out-stations. At all our great urban recruiting centers, and at the headquarters of regimental districts, approving field officers have the power of justices to swear in recruits; and in this way the old delays and obstructions in resorting to a civil magistrate are avoided. He observes that our 'special enlistments are very frequent'; he may take them to be from fifteen to twenty-five per cent. of the whole, but we trust he is not imbued with the common fallacy that 'special' recruits are necessarily inferior; such enlistments arise in the great majority of cases simply from want of correlation, in growing lads, between the hard and fast military standards of height and chest, which, after all, are only approximate, and in no way to be considered as ultimate physiological or vital facts. Nor, for all the outcry, do our 'specials,' under good food and training, long remain distinguishable as such in the ranks.

"As the Medical Staff Corps was to be particularly reported on, we have scanned this lengthy review of it with much interest. On the limitation of the standard of height, between sixty-three and sixty-five inches, he emphatically states, what we fully indorse and wish we could bring home to our opportunist military rulers, who seem to think any stunted creature good enough for a departmental corps: 'I am justified in saying that medical officers of experience do not regard with satisfaction the limitations of stature for these men; and it is obvious that for the conditions of our own service an undersized corps, with consequent inability to handle heavy men, would be unsuitable.'

"Our Medical Staff Corps, notwithstanding disadvantages, is evidently more highly organized than its American cousin, which, according to Colonel Woodhull, is most deficient in the intermediate grades of non-commissioned officers, and 'resembles a regiment made up of privates and sergeants-major.' He considers it 'one of the anomalies that, although on duty at all other stations and on troop-ships to India, the Medical Staff Corps does not serve in that empire.' But there are substantial reasons for the anomaly; a native hospital service had grown up in India long before the Medical Staff Corps was created, and the supersession of that native service by Europeans would not only be enormously expensive, but of doubtful utility, and, from the nature of the duties in an Indian climate, attended with the gravest risks.

"His comments on the Depot and Training School of the corps at Aldershot are of especial interest in view of the underhand attacks we sometimes see made on it in the 'service' press. He says: 'All the Medical Staff Corps recruits at depot are diligently taught infantry drill. . . . Careful and constant observation of the drill, which was extremely interesting from the pains and thoroughness with which it was taught, showed that the medical officers at Aldershot had brought their battalion into an admirable and enviable military state. Necessarily adjusting the movements of their stretcher-bearers to those of their infantry, as we must to our own, I may say at once that I saw nothing except their zeal to recommend for our adoption; and in several particulars our own methods are simpler, the movements more quickly executed, and the exercises more diversified and better adapted to the general end in view—the speedy relief and collection of the disabled.'

"Again: 'The actual drill at Aldershot is admirably executed, but, in my opinion, our manual and drill as a whole are swifter, simpler, and better adapted to the purpose.' We would not, even if we could, now traverse these views, but rather present one more extract: 'I wish to emphasize the expression of my opinion that this instruction, like all I saw at Aldershot, was given with such intelligence and fidelity as to compel the interest and improvement of the men, and that in turn they acquired much of what was taught.'

"That is handsome testimony from an entirely competent foreign officer, whose mission was to criticise, not to praise. We hope it will not be lost upon those who on one pretext and another, and from the most apparent military jealousy, would, regardless of disastrous results, destroy, if they could, both the depot and the training it so well affords. For what are the objects of bearer company as of other military drill according to the report?

"'The rigid adherence to the methods of the drill can not be commended too highly or imitated too closely. As in all other forms of military instruction, it is careful repetition and unvarying uniformity that lead to perfection and to automatic work when the test of battle comes.'

"On the question of medical service with the fighting line in the field, Colonel Woodhull remarks: 'The knowledge that a medical officer is with them (the fighting line) increases the *morale* of the command. In practice, unless fighting under general cover, I doubt whether it will be physically possible for any medical officer to reach many of the wounded where they fall, and an advancing line will very rapidly leave the medical staff in the rear unless that staff passes the disabled without assistance.' In other words, he clearly foresees that not only a highly trained but a very numerous medical service will be required to cope with the terrible demands of future battlefields.

"On our field equipment he writes: 'In my judgment our system of tenting in all its particulars, whether considered for shelter, artificial warmth, convenience of transportation, or general adaptability of campaign, has nothing to acquire from that of Great Britain.'

"He strikingly points out that our 'whole scheme of hospital service in the field is based on the theory of invasion, and active columns proceeding from a marine base, where the general hospital is established, and whence the process of transfer to England of the seriously disabled is carried out.' Just so; as a power essentially maritime and insular, we must always consider our base a marine one.

"Colonel Woodhull witnessed our autumn manœuvres of the First Army Corps, and expresses his supreme surprise that there was no field hospital service whatever trained with it. He says: 'Naturally, I did not inquire too curiously into the cause of the failure to utilize such an opportunity for practical work, but I believe the medical department was not responsible.' For all that, he is probably as well aware of the 'cause' as we are—namely, the penuriousness of the War Office and the entire indifference of the military authorities to medical training; but he utters a sentence of warning from which those responsible will not ultimately escape: 'Modern wars are too sudden in their onset to allow the medical department, which in the nature of the case has few current opportunities, to await for its mechanical training the pressure of immediate service.'

"Of Netley and Aldershot, in their combined functions, he writes: 'In some respects the courses at Netley and Aldershot overlap, and exertion is thus wasted. But taken as a whole, they both are admirable and are strongly recommended for our imitation.'

"Could these institutions be more highly flattered?

"Colonel Woodhull's last few pages relate to the physical training of our soldiers; his appreciation of our system may be gauged from the following sentence: 'Notwithstanding inferior material, there is no question that the British soldier looks better on duty, and as a soldier is more active than our own. To the systematic gymnastic instruction now in force, which is an amplification and an extension of the physical training proper, they are much indebted for this superiority.' Again: 'The physical development of the soldier, in whom the fighting instinct is naturally strong, gives to the British army much of the formidableness it possesses, notwithstanding certain deficiencies in the original material and other incidental conditions of the service.' From all of which it will be seen our American cousin is a just as well as a frank critic in army matters. We sincerely trust his criticisms on the withholding of medical training in field duties, which is absolutely culpable, will not be lost upon those who are primarily, as they will be held ultimately, responsible."

Lectures and Addresses.

THE INAUGURAL ADDRESS
OF THE PRESIDENT
OF THE NEW YORK ACADEMY OF MEDICINE,

JOSEPH D. BRYANT, M.D.

Delivered before the Academy on Thursday Evening, January 17, 1895.

THE foremost duty of one who is honored by his fellowmen is to express his grateful appreciation of the manifestation of confidence and esteem, and to pledge his earnest thought and conscientious labor to the support of the best interests of the charge intrusted by them to his guidance and care.

The fact that you have deemed it wise to honor me, and, too, out of proportion to my merit and expectation, by placing me at the helm in the affairs of the Academy of Medicine, is a tribute of regard and trust which, while it emphasizes the value of past conscientious effort, none the less admonishes one of the necessity of a continuous and untiring endeavor.

Indeed, I thank you sincerely for this earnest of your confidence, and beg to express the hope that no future official action of mine will cause the lodgment of a well-founded regret in the mind of any one.

The usages of the occasion that now claims our attention dictate that a careful consideration shall be given to the affairs of the organization to which we belong and to the advancement of whose prosperity and strength each of us should now pledge an unreserved and loyal support. The attainment of this desideratum is made easy when earnest effort and honest self-denial and abnegation characterize the labor and attempts of men who are engaged in the exaltation and advancement of a common cause.

But it should not be forgotten at the outset that decided differences in honest opinions and in upright purposes are the inevitable products of earnest discussion, when engaged in by sincere and well-meaning persons, whether they are the prime factors of scientific bodies or those of mighty nations. And, whichever they are, the results of deliberate conclusions, when secured by fair means, demand alike the sincere support of all who regard with proper thought the supreme importance of wise control, good order, and well-founded prosperity.

The endurance and thrift of every organization depend on the honesty, the harmony, and the productiveness of the administration of its affairs.

The Academy of Medicine is a definite and well-established organization in every sense of the term, and, like all similar ones, has assets of a material and, if you please, of immaterial nature as well, whose value and productiveness are amenable to the same influences as those of organizations of a baser nature.

The marketable value of the structural, landed, and monetary investments constitutes the *common* material foundation of this and other well-organized and enduring bodies of men; not only because each member of the organization exercises an inherent right in the control, but also because the members themselves can find culture, or comfort, or good-fellowship in connection therewith whenever the inclination or opportunity to do so may arise.

Nor is this all in the instance of the Academy of Medicine, since within the structural possessions are stored the means of mental enrichment and professional exaltation which not only serve to stimulate and increase the fruitfulness of labor, but also beget opportunities and examples that attract to the field fresher energies, greater efforts, and increased prosperity, all of which are well exemplified by two significant words—increasing membership.

Unfortunate indeed it is when for any reason the worm of discontent or the canker of indifference fastens itself on the energy or loyalty of the members. *Then*, material assets of an organization—the landed, structural, and monetary; books, the means of mental enrichment; and membership, the basis of existence—all suffer from the dire effect of the unheeded influences of time, temper, and tempest.

The present condition of the *common* material belongings of the academy is well stated already in the usual reports bearing on these subjects. However, there are two other belongings, or assets, if you please, to which I desire to call your attention, because each should be cultivated with care and treated with circumspection and forethought in an equal degree.

I refer to the books—the library—and to the fellows—the members of the academy. The library should be regarded as a legacy from the present to the future of the academy, and from the present to the future of medical achievement, and indomitable energy should be wisely exercised in the various channels of activity to secure suitable amounts of money the income of which shall maintain the library at as high a state of efficiency as may be required to keep pace with medical attainment.

Fellows of the academy come and go, live, die, and are forgotten, except in the evanescent recollections of those who are near to them in the rank of departure. But *good* books—"the monuments of vanished minds"—are, as Milton said, "the precious life-blood of master spirits, embalmed and treasured up on purpose to a life beyond."

The larger and more comprehensive the library becomes, the greater and the more enduring will be the fame of the academy, and the more beneficent will be its influence on all things coming within the meridian of its activity.

There is not a member of the academy who can not with ease and without personal hardship garner an amount, no matter how modest, which will add the weight of its influence to the force necessary to maintain the library at a maximum state of efficiency. The yearly report shows the membership of the academy to be above seven hundred, and still exhibiting a healthy increase. Now, surely, if each of the seven hundred were to contribute an average of but one hundred dollars to the library fund, the income of the aggregate sum, added to other means now in our possession, would not only meet the wise demands of the library, but also, in so doing, would enable the management to lessen much the yearly tax that is now imposed on the fellows of the academy.

While it is true, of course, that there are fellows for whom the contribution of a hundred dollars would constitute a genuine hardship, yet it is equally true that by far the greater number can each contribute twice or thrice that amount without the least well-founded inconvenience. It is a pure question of personal patriotism.

Those who are not blessed with sufficient funds to make contributions that are consonant with their sense of pride should not forget the facts that patriotic endeavor will bring prompt and cheerful aid from other than personal sources, and, too, that the "widow's mite" is as expressive of earnest, honest intent as the munificent contributions of plethoric resources.

No matter what else may be done to meet this end, let each member constitute himself a committee of one for the purpose of adding his part to a fund that shall glorify his name, not in proportion to the amount given, but in proportion to the cheerfulness and ability of the giving.

All requests for aid and support should be made with becoming dignity and couched in terms that shall impress the fact that he who contributes to medical attainment gives to mercy's cause.

While it is true that the library is the chief vital force of the academy, and that its healthful influence is essential for a proper growth of the organization, still, it is very necessary that the obligations of the academy to other demands be carefully considered as they arise. All financial exactions should be anticipated, provided for, and scrupulously met; moneyed obligations should not be incurred in advance of the ability of their suitable fulfillment; advice on sanitary public questions should be willingly though discreetly given. The desire to be as wise and thoughtful citizens as physicians should be welcomed and regarded as an earnest of increasing patriotism and conclusive of enduring national pre-eminence.

It should not be forgotten at this age and day that a reputation only for medical lore ill-rewards one for the heritage of a dwarfed sentiment or the palsied action bred of indifference or inattention to the common requirements of human obligation.

I can not at this time disregard the fact that, although we are members of a learned profession, and for this reason are believed to be in the enjoyment of established prosperity, there are some of our members who find it difficult to meet their annual obligations to the academy. For such as these I have the sincerest sympathy, and bespeak for them the indulgence and aid of the more fortunate members of the organization. Their burdens will be lessened in direct proportion to the magnitude of the contributions of those who are more favored and to the conduct of affairs with a suitable degree of economy.

A righteous consideration of the sense of duty and the rights of the taxpayers of the academy demand that no unnecessary or prodigal expenditure of the academy's funds shall be permitted, that every avenue of unremunerative outlay shall be closed, and that all indulgences that contemplate an unproductive drain on the treasury or a lessening of the dignity of the organization shall be promptly prohibited. So far as I myself am concerned, I am not in favor of any new departure or the maintenance of an old one that implies an unrequired drain on the treasury or the standing of the academy and its members.

The prospective products of the exercise of wise conceptions and well-directed mental endeavor constitute the immaterial expectancy of every scientific organization that adds facts to fancy, proof to conjecture, and excellence to mediocrity. If this is true, then it is easy to understand that for the achievement of success and the maintenance of good-fellowship both the material and immaterial factors of a body must be attuned in harmonious accord.

In this organization it should be recognized and admitted at the outset that the chief aim of wise conceptions and of mental endeavor contemplates personal unity and improvement and the advancement of medical science; and that any ideas of policy or duty that harbor intentions prospective of doubt or dissension in any degree should be conceived with care, considered with deliberation, and enforced only after a patient heed has been given to the opinions and rights of all others who may be equally concerned.

I will not consume needless time in the recital of details, but, instead, will declare at once that I am well aware of the fact that increased honor is ever attended with increased labor and responsibility.

I shall regard it as my duty, and it certainly will be a pleasure, to labor untiringly in the support of every just and proper measure that emanates from within the organization. It will be my duty to place matters before you in such a manner as to enable you to act with proper understanding and without the danger of subsequent regret. It will be my duty also to hold the scales of deliberation in proper adjustment, in order that our business proceedings shall be characterized by the harmony, justice, and dignity that comport with our station in affairs.

Such, indeed, are but a few of the self-evident duties. Numberless others, many of which are yet in the future, and, perhaps, all unforeseen, will come unbidden and possibly unwelcome upon us. However this may be, it is to be hoped that we shall bear patiently all disappointments and distrust, and earnestly seek for the rewards of constancy, consistency, and courtesy. At all events, I wish it understood that I regard myself as a servant, and not as the master in your affairs.

May I not now bespeak your co-operation and support in all matters that are just and equitable? In all others than these I shall deserve your opposition.

It is to be regretted that the attendance at the academy meetings is not greater. A prompt and large attendance will beget a deeper and more lasting interest, foster a broader and more intelligent appreciation of the academy's affairs, and correspondingly increase the *esprit de corps* of the members.

Finally, I desire that we bear with each other patiently at all times, being assured that all differences will be honest differences, and all conclusions both sincere and just.

Mr. President, in accepting from your hands the great trust which you have so zealously guarded, I comprehend very fully indeed the responsibilities that are incurred. Responsibilities which under ordinary circumstances one might accept with little fear are made doubly imposing now by the coming from a master hand.

Yet I am cheered by the thought that the results of the earnest effort and honest endeavor which you have exhibited may be duplicated by another, if he is wisely moved by the sense of duty and the power of earnest example.

Surely the task is made great by the knowledge that this organization has been fostered by the generous Purple, the genial Barker, the scholarly Jacobi, and the sagacious Loomis, and stimulated by the restless vigor of a Roosa.

If at the end of the term we can point to increased facilities, increased endowments, increased membership, and increased good-fellowship, then indeed shall I be gratified and feel that I have not lived in vain, and that I may exclaim, "Ye gave unto me this which I now return increased many fold."

Original Communications.

ENDOSCOPIC STUDIES

ON VEGETATIONS, POLYPI, ANGEIOMA, MEMBRANOUS AND DIPHTHERITIC URETHRITIS, SUPPURATION FROM THE EJACULATORY DUCTS, CYST OF THE COLLICULUS SEMINALIS, ETC.

By HERMANN G. KLOTZ, M. D.

Some of the cases reported on the following pages were briefly mentioned in a paper published in 1886, entitled Clinical Observations on Endoscopy of the Male Urethra (*N. Y. Medical Journal*, November 27, 1886). I then expressed the intention of describing them more fully in a separate paper. For various reasons, however, the notes remained untouched in my desk until two years ago, when my interest in the cases was renewed by the preparation of the article on Endoscopy for Morrow's *System of Genito-urinary Diseases.* Unfortunately, the space allotted to the subject did not allow of the introduction of clinical material. Some of the observations present such peculiar, almost unique, features that it seems justified even at a late date to place them on record. In several instances the importance of the endoscopic examination of the prostatic urethra is particularly well illustrated, which by some recent authors seems to be considered unnecessary or impracticable.

The instruments and means employed for the endoscopic examination in all the cases were the same as I described and recommended to the profession in the paper mentioned above. The results obtained sufficiently testify to their usefulness, and explain why, in the face of their extreme simplicity, I have not been induced to give them up for more complicated although probably more perfect instruments.

I. Papillary Excrescences: Vegetations.

Vegetations or papillary excrescences of the mucous membrane of the urethra, situated in or near the meatus, are of frequent occurrence, and, as they can easily be seen and reached, do not offer more difficulties to diagnosis and treatment than those commonly found in the sulcus coronarius glandis, on and around the frenulum, known as venereal warts or condylomata acuminata. They share, however, with these their neighbors the tendency to obstinately return after having been removed by caustics or by mechanical means. Vegetations in the deeper portions of the urethra were first distinctly described by Vajda (*Wiener medic. Wochenschrift*, 1882, p. 1029), not observed, however, during life, but on the autopsy table. Vajda cites similar observations reported by Morgagni, Hunter, Rokitansky, Dittel, Tarnowsky, and others.

The literature on the occurrence of multiple new growths of the male urethra has been collated by O. Rosenthal (*Berliner klin. Wochenschrift*, 1884, No. 23), who has published a minute description of a well-observed case; the polypi in this case probably were not of a distinctly papillomatous character. Since then Oberländer has described in his numerous publications a "urethritis papillomatosa," stating the occurrence of multiple papillary excrescences along the urethra; and more recently F. R. Eversole (*St. Louis Polyclinic*, vol. i, August 5, 1889) and F. M. Briggs (*Boston Med. and Surg. Journal*, October 24, 1889) have published cases of papillomatous growths, the latter particularly presenting features quite similar to those which I have observed in two instances.

Case I.—Arthur H., aged twenty-six years, a clerk, contracted gonorrhœa for the first time in the spring of 1883. The disease never showed any severe symptoms; the scanty discharge was usually removed by injections, but obstinately returned as a thin mucous fluid as soon as the syringe was laid aside. The patient therefore was subjected to endoscopic treatment from December, 1883, to March 9, 1884, applications of silver and iodine preparations being made about once a week. By the later date the mucous membrane of the bulbous urethra, which at first had presented a deep red color and finely granulated surface, had assumed an almost normal condition, while in the pendulous portion a number of dilated lacunæ Morgagni remained surrounded by patches of dark red, slightly infiltrated, and uneven mucous membrane. During this treatment small warts had developed on both lips of the meatus, which were removed with a strong solution of chromic acid. As a slight mucous discharge persisted in the morning, steel sounds from No. 28 to No. 30 F. were passed several times in March. Owing to a fresh exposure on March 23d, symptoms of acute gonorrhœa reappeared, accompanied by considerable swelling of the entire glans and pains in the lymphatic ganglia of both groins. By April 29th the acute symptoms had entirely disappeared, but warts had developed again on the lips of the meatus, in their posterior angle, and on the frenulum. As the short and tense condition of the latter seemed to favor the recurrence of the vegetations, it was immediately cut; the wound healed within a few days, but on May 7th the fossa navicularis was found to be filled with a thick, yellow discharge of a peculiarly offensive odor; several small warts could be seen after cleaning. Endoscopic tube No. 24 F. was now introduced as far as the bulbus without any difficulty, although not without considerable pain. After removal of the obturator the field of observation was occupied by a whitish mass of irregular surface which after cleaning and drying proved to be a cluster of papillomatous excrescences closely resembling common condylomata acuminata. On slowly removing the tube it became apparent that the entire pendulous urethra was studded with numerous similar wartlike formations, which either singly or in groups or clusters ("nests" of Rosenthal) principally occupied the lower surface, some, however, growing from the upper aspect and from the lateral folds. They varied greatly in length, thickness, and shape, some reaching a length of about six millimetres; some were filiform and pointed, others club-shaped; some had a thin stem, while others were seated on a broader, substantial basis; some of the larger, cockscomb-shaped ones showed distinct branches and indentations. They did not bleed on being touched, and were set off by their whitish, glistening surface against the pink or red mucous membrane. The smallest excrescences seemed to be formed by a single enlarged papilla. Although no regular distribution could be observed, three larger clusters or tufts could easily be distinguished—one at the entrance to the bulbus, one about in the center of the pendulous urethra, and one about two inches from the meatus—while nearer toward the orifice the warts became smaller and less numerous.

As the patient intended to go to Europe within a few weeks, it was desirable to remove the new growths as quickly as possible. In several sittings the larger groups of warts were removed by means of the polypi guillotine (Morrow's *System*, vol. i, p. 221); the smaller ones were cauterized with a concentrated (fifty-per-cent.) solution of chromic acid. On May 2d two single papillomata about three millimetres long at the entrance to the bulbus and a few small stumps nearer the orifice were all that could be found; they were removed with a ring-shaped curette. None of the procedures were accompanied by much bleeding, but generally followed for a few days by a moderate increase of discharge and pain during micturition. May 23d, when the patient left for Europe, no warts could be seen. On his return in August a small group of warts was observed within about two inches and a half from the meatus, and October 21st a single growth on the same place; in both instances they were removed with the curette. On November 10th no excrescences of any kind were visible, although a number of dilated lacunæ Morgagni indicated that the mucous membrane was not yet in a normal condition. A slight mucous discharge continued for some time, but up to February of the following year no recurrence of warts had taken place.

I have given the history of this case rather extensively, because it shows that it required but a short time for the papillary excrescences to grow to the extent they were found. Evidently before March 9th only a few small warts around the meatus had been present; on May 7th they were found in large numbers over the entire pendulous urethra; but it is more than probable that they did not begin to crop out until after the recurrence of more acute symptoms on March 23d, leaving not more than six weeks for their development.

It is difficult to account for the occurrence of papillomatous growths in the deeper portions of the urethra, particularly if they have to be considered, as several authors believe, as outgrowths of the normal papillæ of the mucous membrane. According to Henle (*Handbuch der systemat. Anatomie*, ii, 2, p. 433), the mucous membrane of the male urethra is studded with papillæ for a distance of from one to four centimetres from the mouth—that is, as far as the stratified pavement epithelium extends; they are particularly numerous and close together near the meatus. Between the papillous and the smooth portions of the mucous membrane there lies a zone in which but single, slender papillæ are met with sometimes at long intervals. But in the above case they were found at a distance of at least twelve centimetres, or five inches, from the meatus.

In regard to the treatment, I can not agree with Rosenthal (*loc. cit.*) on the dangers from chromic acid. No bad effects will result as long as care is taken that none of the solution is allowed to flow upon healthy portions, but that it is confined to the papillary growths. This can easily be attained by using only very small cotton tampons or, better still, pointed wooden sticks, like toothpicks, soaked with the acid. The treatment recommended by Oberländer—rubbing off the warts by means of cotton tampons—had not been heard of when this case was under observation, but I have more recently adopted it with good results in a case of vegetations in the portion of the urethra nearest the meatus. The best method, however, I have for several years found to be the galvano cautery, particularly where the excrescences were not too numerous.

In some cases, particularly in that of Briggs (*loc. cit.*), the papillomatous growths arrested the progress of olive-pointed bougies, and thus misled to the diagnosis of strictures of large caliber. Metal sounds of larger size do not meet with any resistance, although their passage may cause considerable pain and occasionally some bleeding. The discharge resulting from the vegetations is usually but slight and little colored.

Case II closely resembles the one just reported, and therefore will be treated more briefly. Mr. O., twenty-five years of age, came under my treatment in the fall of 1883, after suffering from chronic gonorrhœa for almost two years. Endoscopic treatment greatly improved the condition, but, owing to repeated and protracted absences from New York, could not be followed up with sufficient energy. On his return from a trip to Europe, where he had been treated by several authorities, in October, 1884, I found a group of condylomata acuminata obstructing the external orifice of the urethra; but, on examination as far back as the bulbus, no vegetations could be detected in the urethra itself, only a number of circumscribed granulations. On December 8th, however, the papillomatous growths had extended into the urethra and occupied the mucous membrane for about an inch and a half, either single or grouped, reaching almost the same size as in Case I. They were removed, partly with curved scissors, partly with the ring-shaped curette, within a few weeks, but in February, 1885, after a brief absence of the patient, had recurred to the depth of an inch without attaining the same size and number as before. After removal by similar means, including chromic acid, none reappeared, although, owing to the irregular attendance of the patient, the chronic gonorrhœa was not entirely cured until about January, 1887.

Case III is of special interest on account of the probable origin of the papillary growths. The patient, J. H., twenty-eight years of age, had come under my treatment in March, 1884, for epididymitis of the left side. He had been treated for stricture by a homœopath with "electrolysis" and sounds up to 28 F. for several months, but a slight discharge was still present. With the endoscope, on April 10th, about four centimetres from the meatus, several more or less elevated protuberances were found, about the size of a split pea, with a broad base. Some of them had a granulated surface; others showed distinct, fine, elongated papillæ; some blunt, some pointed. Opposite these warty growths, on the upper aspect of the urethra, there was a depressed scar in the shape of a glistening white stripe, about one centimetre long and three millimetres wide, overlapped by bulging portions of almost normal mucous membrane. Nearer the orifice another white scar, about one centimetre and a half long and even more depressed, was found. From the history it seems probable that the scars were produced by the "electrolytical," or rather galvano-cautery, treatment, and that the warty excrescences were also due to the effects of the electric current, which did not exert equally strong influence on the lower surface as on the upper one. The papillomatous growths were removed by applications of caustics (sulphate of copper, carbolic acid, etc.), and proved quite obstinate, but finally disappeared definitely.

Case IV.—Sch., a porter, thirty-one years of age, had been treated for over a year with sounds and injections, but had still a slight gonorrhœal discharge in July, 1882. At the entrance to the membranous portion a group of small excrescences not larger than a hempseed were discovered, which freely bled on touch; they had a broad basis and an uneven, warty surface. Another similar group was situated about half an inch farther back in the membranous portion itself, originating, as repeated observations demonstrated, from the right upper quadrant of the urethral circumference. Their location at a distance of about seven inches from the meatus, and at a spot where the endoscopic tube is particularly liable to irritate and to cause bleeding of any projecting portion of the mucous membrane, rendered the removal of these growths rather difficult. With a galvano-cautery at my service, it would have been an easy matter to destroy them, but at that time I had to rely on caustics, chromic acid and nitrate of silver. In October, 1882, the last vestige had disappeared and none were observed afterward, the last examination having taken place as late as August, 1885.

Case V.—C. D., aged twenty-six years, for the last eight years had hardly ever been entirely free of urethral discharge, with frequent exacerbations of the condition. About an inch and a half from the meatus I discovered a cockscomb-shaped new growth, a third of an inch in length, growing from the lower wall with a rather slender, more stemlike base, with an irregular, distinctly warty surface. After removal with the guillotine it was found to consist of a number of soft warts. The stump was treated with the galvano-cautery and the wound healed rapidly. The urethral discharge, however, was much more obstinate.

Case VI.—G. St., aged twenty-two years, was under treatment in 1893 for incessant seminal emissions, having never had gonorrhœa or any other venereal disease. To facilitate the introduction of large sounds meatotomy was performed. Before the wound healed, warts began to develop within sight of the orifice, and within a short time spread to a depth of about two inches along the mucous membrane, densely covering the same on several places. In this case Oberländer's method of rubbing off the new growths with two cotton tampons and application of dermatol proved efficacious, the warts being of tender structure, soft, and of recent origin.

II. Polypi.

Quite different in some respects from the papillary excrescences, larger, single new growths are occasionally observed in the male urethra, which from their more or less smooth surface, their shape, and benign character, altogether from their resemblance to similar formations found in other cavities of the human body, may well be designated as polypi in the absence of a better, more strictly anatomical, or histological name. The favorite locality for the development of these real polypi seems to be the membranous portion, at least according to my own observation, which, I am aware, is at variance with that of other authors, who have found them in the pendulous urethra. As a rule they cause very few symptoms, except a continuous slight discharge; but, on examination with bougies à boule, or even with the urethrometer, they will feign a stricture, and in reality have done so in several instances, while to steel sounds of large caliber they do not offer any resistance. The first case that came under my observation was reported in 1881 (*Med. Record*, August 6th). Several polypi were removed by means of an instrument devised for the purpose and called the polypi guillotine. They were situated in the membranous urethra. The largest one, after having been in strong alcohol for some time, measured six millimetres in length and four millimetres in width at its base. Since then several cases have been seen by me. The history of the patient on whom the largest one of these growths was found seems worth while to be given in detail, as it illustrates in an excellent manner the complicated condition which may exist in certain cases of "chronic gonorrhœa," the difficulties and obstacles in the way of successful treatment, and the results which may be obtained by patient work without exposing the patient to the risk of sometimes unsuccessful operations, and without preventing him from attending to his business or profession.

Case VII.—F. Ky., aged thirty-one years, barber, first came under my observation in September, 1885, with a slight discharge, the remnant of a protracted gonorrhœa, lately complicated by symptoms of subacute cystitis. The urethral orifice was very narrow, surrounded by hard cicatricial tissue, and therefore was dilated by cutting. The immediate result was satisfactory, but the patient neglected the after-treatment. He appeared again in December, 1886, with an exacerbation of the chronic discharge, which had not entirely disappeared. The meatus had partly contracted again; in the fossa navicularis a firm stricture was met with which hardly admitted a No. 14 French bougie à boule. After reduction of the secretion to a minimum, on January 15, 1887, a No. 12 French bougie passed the fossa navicularis with difficulty; at three inches and a half passed another stricture, but was stopped at five inches and a half. The cicatricial tissue of the entire anterior urethra rendered it very difficult to establish a caliber of the urethra sufficient for the introduction of an endoscopic tube, and in spite of several incisions in the meatus, sounds, etc., it was not until April 15th that I succeeded in applying a tube No. 23, of three inches and a quarter in length, as far as the bulbous portion. The mucous membrane, almost in its entire length, presented a white, smooth appearance resembling scar tissue or that of a tendon, but formed a very uneven surface. Numerous prominences, particularly from the lower wall, bulged into the tube; some rounded, some conical, each one almost invariably bearing on the front aspect a distinct depression, the wide opening of a lacuna Morgagni. This, and the subsequent observation that applications to these lacunæ caused a gradual disappearance of the humps, seemed to justify the opinion that the inflammation had principally started from the lacunæ, and that cell infiltration, formation of connective tissue, and subsequent cicatrization had taken place around the cavities of the lacunæ

Morgagni. This view has found confirmation by the researches in pathological anatomy of E. Finger (*Arch. f. Dermat.*, supplement 1 for 1891).

At the next examination, a few days later, a tube No. 23, five inches and a quarter long, was employed, but could not be passed beyond the bulbus, where it met with obstruction, although sounds Nos. 24 and 25 had previously reached the bladder without difficulty. On removal of the obturator a peculiar view presented itself, which I have rendered as faithfully as possible in Fig. 19 of Plate I, vol. i of Morrow's *System*. There protruded into the lumen of the tube a cylindrical body, slightly tapering toward the point, about three quarters of an inch long and an eighth of an inch wide at its base, of a dark pink color and a perfectly smooth surface. Further attempts to push on the tube proved fruitless, but revealed the origin of the tumor from the upper left quadrant of the field of view. The new growth was formed by very hard resistant tissue and was not very vascular. Unfortunately, my polypus guillotine was of too large a caliber to be introduced in this case, so I cut off at once a little more than two thirds of the growth with a sharp curette, cauterizing the stump with sulphate of copper, and removed some smaller pieces at subsequent sittings by curetting and by chromic-acid applications. On May 10th no trace of the tumor could be seen except a small white scar. Meanwhile the pendulous portion, particularly the mouths of the lacunæ, had been treated with solutions of silver and copper or iodoform at intervals of about four days. By the end of May the white protuberances had disappeared, and the openings of the lacunæ, which originally formed the center of the front aspects, had been greatly reduced in size and appeared on a level with the surrounding mucous membrane. When the patient had to leave New York soon after, he was able to introduce himself, without difficulty, a No. 24 sound.

Cases VIII and IX.—In two other cases I have observed new growths of much smaller size originating from the same locality—the entrance to the membranous urethra—single in the case of Mr. H., aged thirty-two years, where the diagnosis had been made already with the greatest probability by Dr. F. Eversole, of St. Louis, who sent the patient to me on his removal here; double in that of Mr. P., aged thirty-five years. In both instances a whitish, sharply pointed, wormlike body, not more than a quarter of an inch in length, would be seen to be lifted from the level of the mucous membrane by the edge of the tube and to enter into its lumen. Like the larger cylindrical polypus in Case VII, they were quite firm and tough, with a smooth surface and no tendency to bleed. They could be removed only with great difficulty by means of the curette.

These small growths did not cause any objective symptoms, neither obstruction nor discharge, but they seemed to be the cause of a certain irritation of the entire urethra, which became manifest by a burning pain in the deep urethra and frequent desire to urinate. After removal the new growths did not show a tendency to return. The disagreeable sensations in the urethra ceased after removal. In both instances I have been able to ascertain the permanency of the relief obtained by the patients.

III. Angeioma Cavernosum.

Case X.—In 1884 I had occasion to examine the urethra of a young lawyer who had been repeatedly treated for gonorrhœa, the last attack lasting then about two months. An endoscopic tube, No. 23 F., about three inches long, the largest caliber the meatus would admit, was introduced into the bulbus. On its withdrawal, when the middle of the pendulous portion was reached, suddenly the left side of the urethral wall bulged into view. The protruding portion of the mucous membrane was found to be of a smooth surface and a dark bluish color, of the shape and size of a coffee bean, sharply defined at the base from the dark pink surrounding portions. The tumor was soft and easily yielded to the pressure of the tube, although on introduction it seemed to offer a slight resistance. On close inspection within the tumor a number of separate cords, separated by yellowish wide lines resembling the rings of a coil, could be distinguished, apparently representing dilated blood-vessels, and imparting to the whole mass the character of a cavernous angeioma.

It is difficult to decide exactly whether this was really a cavernous tumor, or whether a pre-existing or accidentally formed gap or a localized thinning out or weakening of the tunica albuginea of the corpus cavernosum allowed the cavernous tissue itself to protrude and to form a kind of diverticle. I am inclined to accept the former opinion, principally on account of the eminently sharp angle which the base of the protuberance formed with the adjoining portion. I have seen similar conditions in small cavernous tumors of the mucous membrane of the hard palate and the anterior aspect of the soft palate, when the tumor would appear with a very distinct contour whenever the muscles of the palate were contracted.

The occurrence of such cavernous swellings is not without practical bearings, because any injury done to them may cause serious hæmorrhage. The swelling in this case was sufficiently palpable to produce the sensation of narrowing of the urethral lumen on examination with a bougie à boule or even with a urethrometer. Mistaken for a stricture, it might be made the object of internal urethrotomy and thereby cause hæmorrhage, thrombosis, etc.

IV. Croupous or Membranous Urethritis and Diphtheria of Urethra.

The number of published cases of true membranous urethritis is a limited one. Tarnowsky mentions cases reported by Pitha and others. A. Pajor (*Arch. f. Dermatol.*, xxi, p. 3) describes several cases and reviews those observed by others. It appears from the perusal of this paper that conditions widely differing among themselves have been included under this name, from a small whitish patch to the shedding of almost the entire lining of the urethra in the shape of a membranous tube. The following case, while not so far developed, undoubtedly deserves to be considered one of membranous exudation upon the surface of the mucous membrane.

Case XI.—Sch., aged thirty-one years, a musician, who had been under my treatment before for gonorrhœa and herpes progenitalis, called at my office October 5, 1884. One week ago, about eight days after sexual intercourse, eight months after the disappearance of the last attack of gonorrhœa, he noticed a slight discharge from the urethra, for which he applied injections of "matico," which he had used before with good results. This time they were followed by pains in the anterior urethra and very slow, dripping evacuation of the urine. In my presence he could void the urine only in a very thin stream in spite of considerable efforts; the urine itself was almost clear. An elastic bougie No. 15 was arrested at two inches, a steel sound, No. 16 F., passed into the bladder; a slight hæmorrhage followed, apparently originating from the site of the resistance. Salicylate of sodium with extract of belladonna was prescribed and all local remedies set aside.

October 7th.—The patient reported that on the preceding afternoon a wormlike substance of a light color had been passed with the urine. A moderate quantity of purulent discharge was noticeable; the urine came in a very thin stream and was cloudy. Endoscope No. 23 was now introduced as far as the bulbus. On inspection the lumen of the tube was found to be filled up by a yellowish-green, gelatinous substance which was easily removed with a blunt hook. It proved to be a string about an inch and a half long and a fourth of an inch thick, and was apparently a solid mass; I searched in vain for a lumen, as it greatly resembled the casts seen in croupous bronchitis. A few smaller membranous pieces of white color were removed. The mucous membrane presented a moderately dark-red, smooth surface in the posterior urethra; in the central portion, where it bled considerably, the surface was eroded in several places with fine red points. The affected portions were dusted with iodoform and an injection of limewater diluted with two parts of water was ordered to be made four times a day.

October 10th.—The sensitiveness of the urethra was greatly reduced, the urine was emptied with but slight difficulty, the purulent discharge, however, had increased, the urine being cloudy. Endoscope No. 24 could not be introduced, but No. 23 reached the bulbus, although with difficulty and under considerable pain. It revealed the mucous membrane covered over a large area, extending almost from the meatus to the bulbus, with a white, thin skin resembling that of boiled milk. After its removal the surface was partly smooth and pale pink, partly of a decidedly scarlet color, moist, with a rough, worm-eaten-like appearance, but did not bleed. These spots were touched with a ten-per-cent. solution of nitrate of silver, the injection changed to zinc sulphocarbolate, a grain to the ounce.

October 14th.—The patient reported the discharge of a number of pieces of a white, membranelike substance and on one occasion of some blood with the urine, but little pain, less urgent desire to urinate, and diminished secretion. Endoscope No. 23 showed the formation of membranes over a very limited area only; some portions were covered with a thin white film, after the removal of which they appeared eroded, moist, dark red, and rather sensitive. The other parts had assumed a more natural pink color and smooth surface. Diluted liquor ferri perchloridi was applied and an injection containing one part of the same drug in two hundred of water was substituted.

October 17th.—Little pain, but slight hæmorrhage, or rather dripping of a bloody urine or secretion from the urethra. Patient can retain urine two hours and a half in the daytime; has to get up at night but once or twice; urinates in a much fuller stream; urine slightly cloudy but acid; contains some small pieces of membrane.

October 20th.—Reports the evacuation on the 18th of several blood coagula with the urine; after an injection, difficulty with the urine and temporary inability to empty the bladder, until the spontaneous ejection of a fibrinous clot brought relief. A small quantity of purulent discharge can be squeezed from the urethra. Endoscope No. 23 shows a number of small patches which are very sensitive to the touch, slightly eroded, bleeding from several distinct fine points. Nearer the meatus some portions are dark red but smooth. The entire length of the urethra was dusted with powder of iodoform; injection of nitrate of bismuth and pills of copaiba and cubebs internally.

October 22d.—Hardly any pain, but copious purulent discharge; with endoscope No. 23, less tendency to bleed; application of iodoform.

October 26th.—Continuous flow of pus; slight pain near meatus; urine less cloudy. Irrigation with solution of corrosive sublimate (1 to 15,000) followed by slight oozing of blood; continued pills.

November 1st.—Discharge became much less after two days; urine clear, followed by a few drops of blood at the end; slight pain in one spot in the anterior urethra. From this date on all the symptoms gradually disappeared under the injection of the liquor ferri perchloridi solution.

The following two cases do not strictly belong here, as the endoscope played no important part in their observation. I have no doubt that the affection of the urethra in both was a diphtheritic one, although I am unable to bring forth any positive proof. The rarity of diphtheritic lesions of the urethra (see F. J. Brown, *Journal of Cutaneous Diseases*, vol. viii, p. 289, 1890) will justify, I believe, their publication here:

Case XII.—Mr. St., who had been under my treatment for chronic gonorrhœa up to May, 1889, on October 21st of the same year returned from a business trip with a fresh affection of the urethra. About eight days ago, three or four days after sexual intercourse, he noticed a slight pain in the orifice, with very scanty discharge. The flow rapidly increased within a few days in spite of the use of a mild injection, but remained more watery. When I saw the patient on the above date the entire glans penis and the prepuce were considerably swollen and reddened; the mucous membrane of both lips of the meatus showed a number of irregularly shaped, pale-yellow spots. Owing to the tense swelling of the glans it was impossible to distinctly decide whether these spots were due to a superficial loss of substance or to an exudation on the surface. The general condition of the patient was by no means satisfactory; the inguinal glands were somewhat enlarged and sensitive on both sides. Irrigation with a mild solution of corrosive sublimate (about 1 to 40,000) and permanganate of potassium was very painful. Iodoform was applied to the yellow spots, and an injection of acetate of lead and boric acid was prescribed.

October 23d.—The swelling of prepuce and glans had greatly subsided; the meatus was still very red; the mucous membrane of both lips showed circumscribed areas of a yellowish color, which gave the distinct impression of membranes formed upon the surface or within the superficial layers of the mucous membrane itself; they certainly were not ulcers. A very copious watery discharge had continued; the urine was somewhat cloudy; moderate pain in the region of the kidneys. Irrigation with corrosive sublimate (1 to 40,000); salicylate of sodium internally.

25th.—Swelling almost entirely disappeared, except around the urethral orifice itself, which was still quite hard to the touch. The membranous coating was much less extended, and on October 27th no trace of it was left, while a watery secretion continued, and the swelling of the left inguinal glands was noticeable for some time. The healing process was altogether very slow, and when the discharge finally stopped, or was reduced to a minimum, the anterior portion of the urethra was found to be narrowed down to admit a No. 21 F. sound with difficulty.

Case XIII.—Mr. R. had been under my treatment since February, 1888, for syphilis, which heretofore had been of a very mild type.

November 7th.—He reported that for some time he had noticed a slight discharge from the urethra, and had used with good results an injection of chloride of zinc (five grains to four ounces). Within the last two days, however, he had experienced quite severe pain in the urethra, with frequent desire to urinate, sometimes without being able to accomplish this on account of a severe pain which was felt as soon as the outflowing urine reached a certain spot. The meatus and the entire glans were of a deep red color and intensely swollen; the inside of the lips was coated with whitish-gray membranes, resembling felt. The urethra, for about three inches, could be felt as a hard, thickened cord; there was a thin, watery discharge of a dirty-gray color, containing small, grayish crumbled particles of tissue in suspension. The patient was feverish, with loss of appetite and great general depression. An attempt to introduce a Nélaton catheter, No. 8 F., failed on account of the severe pain, but was followed by spontaneous evacuation of the urine. Applications of lead-water with boric acid brought but little relief until after the expulsion on the next morning of a membranous substance, which was found upon the cotton placed around the meatus.

9th.—The swelling and hardness of the parts had largely subsided, only the lips of the meatus were still swollen and sensitive; near the orifice remnants of the membranous infiltration were found; the other portions looked red and moist, suggesting loss of the epithelial cover.

After November 11th the symptoms rapidly disappeared, only the orifice continued for a longer period to present a very tender, somewhat eroded surface, and, like the rest of the urethra, to be extremely sensitive. This tenderness proved a serious obstacle to the final cure of the at no time copious or purulent discharge. The general health of the patient, which at the time did not seem to be influenced at all by the syphilitic infection, gradually improved. During all this time, and for several months afterward, no symptoms of syphilis whatever were apparent, although all specific treatment had been suspended.

V. Purulent Discharge from the Ductus Ejaculatorius; Cyst of the Utriculus (?).

It has been but rarely described as observed in endoscopic practice that purulent discharge was found oozing from a distinct spot. In the paper mentioned above I referred to a case in which a small drop of a white, milky fluid was seen to ooze from a minute spot on the upper surface of the urethral lining, about an inch forward of the membranous portion. This was exactly observed on the very same spot on different examinations at different times. From the location I concluded that the opening from which the fluid emerged was the mouth of the duct of one of Cowper's glands. In the following case the source of a purulent discharge was apparently the ductus ejaculatorius:

Case XIV.—A. Sch., twenty-one years of age, a barber, came under my observation in August, 1886. As his father informed me, he had been sent to work in a factory when quite young, and had quickly acquired the habit of self abuse. About a year ago he had contracted gonorrhœa, which after a rather acute course of several weeks had left a moderate discharge, sufficient to form a thick yellow drop on a rag which was wrapped about the orifice. The meatus showed extreme redness of the mucous membrane and several folds and deep furrows, while the lower portion was covered by a thin membrane. This was cut through immediately, as it barred the use of any larger instrument. Not until November 18th, after several relapses of copious secretion, cystitis, etc., was I able to make an examination with the endoscope. No. 23, later 24, reached the prostatic portion without difficulty. The mucous membrane of the entire posterior urethra was dark red and finely granulated, particularly on both sides of the caput gallinaginis, extending into the furrows on both sides of the colliculus seminalis itself. The anterior portion of the urethra showed but slight lesions near the meatus. On subsequent examinations I found these furrows covered with pus or pus flakes, and could distinctly watch a small drop of pus oozing out of a minute opening; after wiping it off, on pressure with the edge of the tube a new drop could repeatedly be squeezed out. This could be observed on several subsequent examinations; at first the discharge appeared on both sides, but after December 13th only on the left side of the patient could the purulent drop be squeezed out with the edge of the tube. Applications of solutions of nitrate of silver (two, five, and ten per cent.) and of iodoform and iodoform-ether seemed to reduce the suppuration and at times to suppress it entirely, but it returned over and over again as soon as the patient had an emission. I then tried to enter the opening with probes and with a long cannula of a Pravaz's syringe constructed for the purpose, and after several futile attempts succeeded in entering the point of the syringe and in injecting a few drops of a two-and-a-half-per-cent. solution of nitrate of silver. The result was apparently a very good one; after every application the quantity of the purulent discharge became smaller. On February 1st the syringe was not used, but only an application of a ten-per-cent. solution of silver and iodoform to the site of the oozing point was made, but February 3d symptoms of a very acute epididymitis of the left side set in and rapidly developed into a severe and painful swelling. The inflammation at one time threatened to extend to the right epididymis, but fortunately the progress was checked.

February 23d.—The epididymitis had passed off sufficiently to allow of endoscopic examination again, when the prostatic urethra appeared in an almost normal pink color, with a perfectly smooth surface; no pus could be squeezed out on the locality of its former appearance either then or on subsequent occasions up to May 24, 1887.

I have had the patient under occasional observation ever since, and have treated him repeatedly for fresh attacks of gonorrhœa, but never have I been able to notice similar conditions again.

The same good final result was not obtained in another observation with similar features.

Case XV.—W. K., aged about twenty years, a student, came under my treatment about seven months after his first infection with gonorrhœa. The disease had never entirely ceased, but had broken out with renewed copious flow of pus on several provocations. The case proved a very obstinate one, and not until after four months had the acute symptoms sufficiently subsided to allow of an examination with the endoscope. This revealed an accumulation of pus in the membranous portion, and at subsequent sittings I could observe that on approaching the prostatic portion, the tube would suddenly be filled with a more or less watery, but slightly sticky, generally opaque or slightly blood-tinged fluid. Applications of different drugs, among them the peroxide of hydrogen, gradually changed the character of the fluid to an almost clear condition; it became less in quantity and at times disappeared altogether. The discharge from the urethra had stopped and the filaments in the urine become very insignificant, when suddenly, without any apparent cause, the left epididymis showed great tenderness and became the seat of a comparatively mild inflammation. When the patient had to leave New York soon afterward, the epididymitis was entirely cured, no discharge could be seen, and the urine was perfectly clear and almost free of threads; but I was informed that a slight discharge had returned afterward. The effusion of a more or less clear, watery fluid into the cavity of the endoscopic tube on its entering the prostatic urethra I have observed in several cases where there existed neither a discharge nor even a history of gonorrhœa, but where the patients complained of a constant annoying, not clearly describable, sensation at the site of the prostatic urethra.

Case XVI.—In one instance I have seen the colliculus seminalis forming a pea-sized protuberance of a bluish-white color, almost transparent, making the impression of a cyst filled with serum. On pressure with the edge of the tube, a considerable quantity of a clear, watery fluid was emptied into the urethra. A slight depression on the surface seemed to indicate the sinus prostaticus or the orifice of the utriculus. The galvano-cautery was applied to the most prominent part of the swelling. Since then I have not observed again the copious discharge of watery fluid. At the next examination the colliculus appeared but slightly enlarged, with a utricular orifice of the form and size observed in healthy persons. I have little doubt that in this case there existed a cystic dilatation of the utriculus, probably with the product of its own glands. Belfield (*Jour. of the Amer. Med. Association*, April 21, 1894) has recently called attention to the importance of this generally neglected organ. In the face of the great difficulties of examining this portion of the urethra, I feel somewhat reluctant to make the diagnosis of a cyst more positively. The application of the galvano-cautery was followed by great alleviation of the patient's complaints.

VI. Examples of the More Frequent and Usual Conditions in Chronic Urethral Disease.

The observations reported in the foregoing represent almost all the unusual and particularly interesting cases out of a large number of patients subject to endoscopic examination and treatment within almost fifteen years. In the largest number of instances only less striking and less remarkable conditions were found. If I am not entirely mistaken, much of the disappointment experienced by those who have endeavored to apply the endoscope for diagnosis and treatment of urethral diseases has been due to the exaggerated expectations of meeting with such extraordinary conditions, instead of other trivial and apparently less important lesions, which seemed hardly worth the trouble of endoscopic examination. Still, I believe we have to share this experience with other specialists, particularly with the otologist, the laryngologist, and others. The bulk of their cases will show only conditions due to chronic catarrhal inflammation, and a small percentage only will represent cases of tumors of all kinds and other more or less rare phenomena. These simple conditions, however, furnish a fruitful field for therapeutic action, and fully justify the increased outlay of work and time spent on the examination with special instruments and local treatment rendered possible by these means. It therefore occurred to me that it would not be without interest to add a few examples of such cases as are likely to occur most frequently in practice, and apt to illustrate the combination of various pathological conditions in actual practice. Most of these cases had been prepared for my article on Endoscopy in Morrow's *System*, but want of space prevented their insertion:

Case XVII.—K , twenty-seven years of age, has had gonorrhœa at different times. For the last eighteen months, in spite of continued treatment with injections, sounds, etc., he has never been entirely free of urethral discharge, which on the slightest provocation became quite copious again; has had cystitis and very obstinate rheumatism. Urine slightly cloudy, with numerous filaments. Endoscope No. 26 easily reaches the bulbus, where the mucous membrane appears moist, dark red, of a tender, somewhat infirm texture, easily bleeding. Central portion of pendulous urethra almost normal; in the anterior region a number of dilated, dark-red, and moist lacunæ Morgagni; congestion diminishing toward the meatus.

Case XVIII.—M., aged thirty years, has had gonorrhœa for the last two years, at no time of a very severe character, but constantly undergoing exacerbation on drinking, etc. Meatus very tight. After meatotomy endoscope No. 26 shows anterior portion of prostatic and the membranous urethra in a state of congestion; posterior portion of pendulous urethra normal, in the anterior half a number of prominent lacunæ and dark-red rough patches in the lateral folds.

Case XIX.—B., aged twenty-four years, got gonorrhœa in January with epididymitis on both sides; in April, after treatment with deep injections, a small white drop remained in the morning. Endoscope No. 24 shows but slight redness in posterior parts; in the pendulous portion a number of wide and dark-red lacunæ and longitudinal furrows with dark, uneven, worm-eaten-like surface.

Case XX.—A., aged twenty-six years, had gonorrhœa six years ago, which lasted a year; eight months ago, for the second time gonorrhœal infection. A discharge continues in the morning with a number of filaments in the urine. With endoscope No. 24 the membranous portion appears red and œdematous, bleeding at its entrance; pendulous urethra normal for almost two thirds of its length; the anterior third rigid, uneven, dull red, lusterless surface; symptoms decreasing toward the meatus.

Case XXI.—B., aged thirty years, has had gonorrhœa frequently within the last fifteen years; a year ago had two strictures cut; a thin, viscid, whitish secretion continues, with numerous thin threads. Endoscope No. 28 shows normal condition of prostatic and distal half of membranous portion; anterior half of membranous and bulbous urethra dark red, granulated, bleeding; in pendulous portion scars along the upper wall surrounded by dark-red, moist, bulging folds; lacunæ moderately wide and rough.

Case XXII.—H., aged twenty-eight years, had gonorrhœa several times; lately epididymitis. In spite of treatment with sounds, deep injections, etc., some discharge persists. Endoscope No. 24 passes with difficulty through anterior portion, easily through deeper parts. Membranous and posterior half of cavernous urethra smooth and pale pink; central and anterior third of the latter rather resistant, with a number of small longitudinal fissures; central figure irregular, triangular in some places, surface rough, granulated, dark red, of a dull, dirty shade; in some places white, firm, almost cicatricial condition.

Case XXIII.—G., aged twenty-three years, brewer, has had gonorrhœa several times. Seven years ago transient retentio urinæ, which has occurred frequently within the last year; no discharge for some time, but frequent pain in perinæum. *Per rectum*, prostate gland distinctly enlarged; pressure produces a grayish, thin discharge from urethra. Endoscope No. 24 enters membranous portion with a sudden jerk; shows colliculus seminalis considerably swollen, dark red, with uneven surface, easily bleeding; membranous portion white cicatricial tissue; pendula normal, except for a number of wide lacunæ and moderate diffuse redness in the anterior portion.

Case XXIV.—Kl., aged twenty-six years, has had gonorrhœa several times; the last time four months ago, but now no discharge for several weeks; complains of severe burning during and after micturition; urine perfectly clear; no threads. Endoscope No. 25 easily reaches the bulbus; shows diffuse redness and uneven surface in posterior portion of pendula; central and anterior portions normal except a number of dark-red, almost brown, dry, slightly corroded patches in both lateral folds, which stain dark brown on being touched with tincture of iodine.

42 EAST TWENTY-SECOND STREET.

HYPNOTISM

IN ITS RELATIONS TO CRIMINAL JURISPRUDENCE.

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I HAVE been asked to pass a scientific opinion on the question whether hypnotism can be successfully employed to induce the commission of crime, and a legal opinion concerning the status of hypnotism in criminal jurisprudence. There are perhaps no two questions of more vital interest or imminent importance than these. When a confessed murderer is acquitted on the plea that he was hypnotized and compelled to commit the crime, a question is presented which is in some respects cognate to the old problem of emotional insanity. It is, however, of infinitely greater importance than the latter, for the obvious reason that emotional insanity could be made available as a defense only when it could be clearly shown that the victim had so grossly invaded the private rights of the accused as to deserve his punishment, whereas the defense which consists wholly of the allegation that some third person compelled the commission of the crime by means of hypnotism is equally open to the avenger of a grievous wrong and the coldest-blooded murderer that ever scuttled a ship or cut a throat. It is obvious that if such a defense is once admitted as an element of criminal jurisprudence, a very wide and a hitherto unexplored avenue of escape is opened to the criminal classes. Nevertheless, when a criminal is acquitted on such grounds it may be said in extenuation that the jury entertained a "reasonable doubt," or invoked the old common-law maxim that "it were better that ninety-nine guilty men should escape than that one innocent man should be put to death." But when a confessed murderer is not only acquitted of the crime, but the alleged hypnotist is convicted of murder in the first degree on the testimony alone of said murderer, the question assumes a far more serious aspect. If such a thing can happen no man is safe who incurs the enmity of one of the criminal classes. As the books say of the charge of rape, "it is an accusation easy to make, but difficult to disprove." In the present state of popular opinion on the subject of hypnotism it is a charge impossible of refutation. The popular belief on the subject may be summed up in two sentences:

1. It is the popular belief that a person may be hypnotized at a distance and against his will.

2. It is also believed that in the hypnotic state a person is under the absolute dominion of the will of the hypnotist, and can be compelled to perform any act, however repugnant to his feelings or his conscience.

Obviously, if these two propositions are true, hypnotism has a legitimate place in criminal jurisprudence. The scientists, however, who hold that hypnotism can be employed for criminal purposes do not all agree as to the truth of the first proposition, but they sustain the second with practical unanimity. It is to this second proposition, therefore, that we must first direct our attention, for if that is found to be untrue it is unimportant whether the first is true or false.

It must be premised that the science of hypnotism is yet in its infancy. No man can safely predict its future, as to either its uses or its abuses. That it is useful when legitimately employed no one who is acquainted with the facts will deny. That it may be employed to the detriment of its votaries is a proposition that is equally true of everything in Nature. That when its laws are understood they will be found to be promotive of the highest good of the human race is a proposition sanctioned by every discovery yet made in the domain of Nature's laws.

Little as is known of the ultimate possibilities of hypnotism, there are some things about it that have been definitely ascertained and are, broadly speaking, as well known now as they can ever be known. It is not necessary for one to be able to calculate the eclipses to enable him to know that the earth is round or to grasp the fundamental hypothesis of gravitation. Nor is it necessary for us to know the future possibilities of hypnotism to enable us to grasp its fundamental laws, since they have been definitely formulated.

Broadly speaking, we know what hypnotism is, and we know at least one of its fundamental laws. The researches of the European scientists have definitely settled that much, and for the purposes of our present inquiry it is sufficient.

The word "hypnotism" is derived from the Greek ὕπνος signifying "sleep." Dr. Braid, who was the originator of the term, defined it as "nervous sleep" or induced sleep.* This implied the theory, then prevalent, that a subject must be asleep in order to exhibit the phenomena of hypnotism. Professor Liébault, of Nancy, extended the researches of Braid, and immortalized his own name by the discovery of the law of "suggestion." Professor Bernheim, a pupil of Liébault's, in conjunction with the latter, discovered that the Braidian definition was too limited in its scope to embrace all the phenomena, inasmuch as it was found that many of the distinctive results could be produced while the subject was in what Bernheim terms the "waking condition." Bernheim, therefore, defines hypnotism as "the induction of a peculiar psychical condition, which increases the susceptibility to suggestion."† This implies the theory that persons are normally susceptible to "suggestion." This conclusion, however, does not seem to be warranted, except in the sense that all are subject to the influence of others. There must be some abeyance of the objective faculties in order to produce the phenomena of suggestibility in the hypnotic sense—that is, in the sense that a suggestion can produce an hallucination. My definition of hypnotism would, therefore, substitute the word *induces* for "increases" in Bernheim's definition.

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* *Neurypnology*, p. 13.

† *Suggestive Therapeutics*, p. 15.

As before remarked, Professor Liébault discovered and formulated the law of suggestion. That law is now almost universally recognized by scientists throughout the civilized world as *the* potent factor in hypnotism. I say "almost," for there are still a few exceptions, consisting of a constantly diminishing number of the followers of the late Professor Charcot, who believed that hypnosis could be induced only in hysterical patients. There is one other French "scientist" who succeeds in astonishing himself and amusing the scientific world by the production of phenomena which demonstrate nothing but his own ignorance of the principle of suggestion. Then there is one English author who recently produced a universal guffaw in the scientific world by publishing an *exposé* of the Frenchman, and succeeded in astonishing all Europe and America by demonstrating the fact that he knew less about the subject than the Frenchman himself. With these unimportant exceptions the law of suggestion is universally recognized among scientists.

Formally stated, the law is this:

Persons in an hypnotic state are constantly amenable to control by suggestion.

Broadly speaking, suggestion, as the term is employed in hypnotic science, is a statement (true or false) made to an hypnotic subject. Its potency resides in the fact that the hypnotized subject unhesitatingly accepts the statement or suggestion as true, and acts accordingly. Thus, an hypnotic subject may be made to believe that he is another person, or that he is an animal, or a demon, or an angel, and he will assume the character and act the part to the life, within the limits of his physical or mental capacity. He may be made to get drunk on water by suggesting to him that it is brandy; and he may then be made sober by giving him brandy accompanied by the suggestion that it is an antidote to the previous "stimulant."

These are the fundamental facts of hypnotism as they are recognized by the public. And it is upon these facts, thus broadly stated and superficially understood, that the conclusion has been based that hypnotism can be employed as an agent of the criminal. It is, perhaps, a natural conclusion for one who has witnessed only the common platform experiments. He sees the subject thrown into a state that is to him mysterious and inexplicable. He sees the subject in that condition become apparently under the absolute control of the operator and dominated by the most absurd suggestions. His natural conclusion is that, if the operator chose to suggest to the subject that it was necessary for him to perpetrate a crime, he would be compelled to do so in obedience to the law of suggestion. This is the first conclusion at which the European scientists arrived. But they were not content with mere platform experiments and abstract deductions. So they instituted a series of laboratory experiments in which criminal suggestions constituted the salient feature. Subjects were hypnotized and paper daggers were placed in their hands, and the suggestion was made that it was extremely desirable that some imaginary person, or real one for that matter, should be incontinently slaughtered. It is needless to say that the suggestion was in every instance obeyed with the greatest alacrity. It is almost superfluous to add that the experimenters, who were mostly medical gentlemen, were practically unanimous in the opinion that hypnotism was a very dangerous force in the hands of anybody but doctors.

It is my purpose in this paper to show that this view of the case is to the last degree superficial, and evinces a singular lack of appreciation of the real scope and significance of the law of suggestion. In their view of the question, suggestion would be confined to the oral declaration of the hypnotist to his subject. The truth is that the suggestions of the hypnotist constitute the least important part of the suggestions that dominate the mind of the subject.

Suggestions are divided into two classes—namely: 1. Suggestions by a second person, as by a hypnotist. 2. Auto-suggestions.

The first class is again subdivided into two classes—viz.: 1. Oral suggestions. 2. Mental suggestions.

With the latter class we shall have nothing to do, as it belongs to a higher phase of psychic phenomena than we are considering.

Auto suggestions are subdivided into four classes, viz.: 1. Volitional auto-suggestions. 2. Suggestions of moral education and fixed principles. 3. Instinctive auto-suggestions. 4. Suggestions of the environment.

The greater part of the above divisions and subdivisions are explained by their terms. The subdivisions of auto-suggestions, however, require elucidation. Before proceeding to do so I desire to impress a very important fact upon the mind of the reader.

It often happens in the course of experiments in hypnotism that two contrary suggestions will be made at the same time. The invariable result is that great distress of mind is inflicted on the subject, and it often results in bringing him out of the hypnotic state with a severe nervous shock. Where the latter result does not follow, the stronger suggestion necessarily prevails. The importance of this fact will become obvious as we proceed.

1. *A volitional auto-suggestion* is one which the subject makes to himself before being hypnotized. For instance, if he anticipates the possibility that the hypnotist will place him in a ridiculous attitude, or one repugnant to his sense of propriety, he will resolve beforehand that he will not obey the suggestion. If, then, the anticipated suggestion is made by the hypnotist it will be strongly resisted, and the potency of the resistance will be in exact proportion to the subject's innate sense of dignity or propriety. If that is very strong, and the hypnotist insists upon his suggestion, the subject will be restored to his normal condition.

2. *Suggestions of moral education and fixed principles* are of a cognate character to the foregoing. These reach the very heart of the subject under consideration. Thus, if a subject is told to do anything that is contrary to the settled principles of his life, he will resist the suggestion with all the force of his moral nature. Consequently, when an immoral or a criminal suggestion is made by a hypnotist, whether it is obeyed or not is purely a question of moral

character. If the subject is strongly intrenched in moral rectitude he will resist the suggestion; and, if the hypnotist persists, the subject will be restored to normal consciousness with a nervous shock proportioned to the infamy of the suggestion. "Strength of mind" is not a factor in the case. Strength of "will," in the ordinary acceptation of the term, has nothing to do with the result. "Will," in the psychic sense, is nothing more nor less than *desire*. Consequently, if the subject's desire to obey the dictates of conscience is stronger than his desire to obey the suggestions of the hypnotist, the auto-suggestion must prevail. In other words, there is no such thing in real life as a hypnotist having absolute control of a subject against the will of the latter.

3. *Instinctive auto-suggestions* are those which arise from the natural desire to protect one's own life or that of his wife or children. They are by far the strongest auto-suggestions which a criminal hypnotist would have to encounter in an effort to procure the commission of a crime by means of suggestion. It has often been said that a criminal hypnotist would have the power to induce a subject to commit suicide, or to procure an abortion, by means of suggestion. But such a use of that power is obviously out of the question when we consider the inherent strength of the instinct of self preservation, and the potency of that subjective clinging to the life of the fœtus which is the inherent attribute of every mother. Besides, the same instinct of self-preservation would constitute a potent factor in case of an attempt to instigate the commission of a murder. The subject would instinctively reason up to the consequences to himself in case of detection; and, even though his moral principles might not constitute an auto-suggestion of sufficient potency to enable him to withstand the suggestion of a criminal hypnotist, his own instinct of self-preservation would more than likely have that effect.

4. *Suggestions of the environment* are those suggestions which arise spontaneously in the mind of the subject from his knowledge of the nature of the experiments about to be made, of the character of the persons present, the objects of the experiments, and the desires of the experimenters.

In the whole range of experimental hypnotism there are no auto-suggestions that are more apt to modify results than the suggestions of the environment are. And there are none that are disregarded by a certain class of experimenters with such persistent, aggressive fatuity. Indeed, it is somewhat difficult at all times to intelligently eliminate these suggestions; and in a certain class of experiments it is practically impossible. The experiments which we are now considering belong to that class; and it may be set down as an axiom in experimental hypnotism that *no laboratory experiment conducted for the purpose of ascertaining whether suggestion can be successfully employed to induce an hypnotic subject to perpetrate a crime is of any evidential value whatever.*

When a subject is hypnotized for that purpose he knows that he is among friends. He knows that they are law-abiding citizens who will take care that no harm shall result from the experiments about to be made. He generally knows that he is expected to carry out all suggestions that are made to him. He is very probably aware that he is expected to demonstrate the truth of the proposition that a criminal hypnotist can compel his subject to commit crime. Like all hypnotic subjects he is anxious to win applause—to create astonishment. In short, he knows that he is the central figure in a comedy or farce which is about to be played in the interests of "science," and he feels that he is the "scientist." The inevitable consequence is that he resolves to carry out every suggestion of the hypnotist, knowing that no harm can possibly result. A paper dagger is placed in his hands and he is told that a certain gentleman present is an enemy who "needs killing." This he is ready to do, and he proceeds to thrust his paper dagger into the heart of his "enemy," amid the applause of the assembled wisdom.

It is obvious that the moral character of the subject can not enter as a factor in an experimental case of this kind. He is simply a player in a farce in which he assumes the rôle of the heavy villain. Moreover, the result could be easily reversed by simply suggesting to the subject that he was expected to disobey the criminal suggestions of the hypnotist. In short, the subject in such experiments will do just what he believes to be expected of him; and the suggestions of the environment will always afford some hint as to that, even if they amount to nothing more than an assurance that it is perfectly safe for him to obey the suggestions made by the hypnotist. It is obvious that laboratory experiments can go no further than the enactment of a farce. No one would dare to place a real dagger or a loaded pistol in the hands of a hypnotized subject and suggest the murder of a real person.*

Space forbids the citation of authorities to sustain the foregoing propositions, although they are numerous.†

It must be obvious to the intelligent reader that laboratory and platform experiments in this line have no possible evidential value. And when we remember that all the hue and cry that has been raised on the subject of "hypnotism and crime" is based upon these same laboratory experiments, it will be seen that the public has been led into an error of enormous proportions and of infinite moment in the administration of criminal justice. This, however, only pertains to the value of laboratory experiments as evidence. It must not be forgotten that while they do not prove that hypnotism can be employed for criminal purposes, neither do they disprove that proposition. It simply demonstrates the necessity for eliminating the results of experimental investigation from consideration.

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* Since the manuscript of this paper was forwarded to the publishers a new book has been placed in my hands, entitled *Hypnotism: How it is Done; Its Uses and Dangers*, by Dr. James R. Cocke, of Boston. This gentleman had the courage to make a practical experiment in this line. Standing in front of a deeply hypnotized subject, he placed a piece of cardboard in her hands, telling her that it was a dagger, and commanded her to stab him. This command she immediately obeyed with the greatest alacrity. He then handed her an open pocket knife and again commanded her to stab him. She raised her hand as if to execute the command, but hesitated, and immediately had an hysterical attack, which of course put an end to the experiment. The doctor adds: "I have tried similar experiments upon thirty or forty people with similar results." He also states that he made a number of tests to prove that the subject was deeply hypnotized.

† For a fuller discussion of the subject and a collection of authorities, see *The Law of Psychic Phenomena*, chap. x.

The question of fact still remains: Can hypnotism be successfully employed for the perpetration of crime? My remarks relating to auto-suggestions arising from the moral education and the fixed principles of the subject will have prepared the reader's mind for the only rational answer—viz., it is purely a question of moral character. A criminal hypnotist in control of a criminal subject could undoubtedly procure the commission of a crime under exceptionally favorable circumstances. But a criminal hypnotist would simply waste his energies in hypnotizing a criminal subject; for a man of that character could, without doubt, be just as easily manipulated in his normal condition. Be that as it may, the fact remains that *when a man sets up hypnotism as a defense in a criminal trial he proclaims himself a criminal character.*

Beyond what has already been said of the worthlessness of experimental investigation, this is the only general proposition that can be predicated with certainty from a knowledge of the fundamental laws of hypnotism. But it practically covers the whole ground.

The first legal question that arises is, How far ought hypnotism to be admitted as a defense when it is pleaded? My answer is that it should never, under any circumstances, be admitted as a defense for the one who is clearly proved to have committed the crime. Drunkenness can not be urged as a defense, and there is infinitely less reason for admitting hypnotism. In the one case a good man may be so far crazed by liquor as to become, in fact, utterly irresponsible. Yet the fact is not admitted as a defense, on the ground that he voluntarily rendered himself irresponsible by getting intoxicated. The hypnotic subject should be held to the same rule and for the same reason; for no man can be hypnotized against his will. This is practically the universal testimony of all the scientific writers on the subject. He voluntarily places himself in the power of a hypnotist whom he more than probably knows to be a criminal character, and he should be held to the same accountability for the results as if he had voluntarily "placed an enemy in his mouth to steal away his brains." Moreover, as I have previously shown, the hypnotized subject will never commit a crime in that state that he would not commit in his normal condition.

The next legal question is as to the admissibility of the testimony of the alleged hypnotic subject in a criminal prosecution of the alleged hypnotist as an accessory before the fact. It is difficult to imagine any legal grounds for the admission of his testimony at all; for if it is true that he was so deeply hypnotized as to be an irresponsible agent in the hands of the hypnotist, he was necessarily in a state that would preclude the possibility of his having any definite recollection of what happened. Indeed, his whole testimony would be open to the suspicion that he was merely reciting the details of a subjective hallucination. In that case his testimony would be literally "of such stuff as dreams are made of"—the "baseless fabric of a vision." Obviously it should have no more standing in a court of justice than an alleged dream. Consequently, if it is clearly proved that he was hypnotized, his own testimony should be excluded as against the other party concerning what happened during the period of his irresponsibility.

This brings up the question so often mooted as to the propriety of hypnotizing a party in court for the purpose of questioning him concerning what happened to him during a previous hypnotization. From a legal standpoint this is a most intensely absurd proposition. Not one of the conditions which give value to human testimony would be present. In the first place, he could not be punished for perjury if he swore falsely; and the instinct of self-preservation would cause him to swear falsely if the truth would militate against him. Moreover, being in a hypnotic state, he would be amenable to control by suggestion, and a cross-examination would utterly confuse him. A cross-examination by a competent lawyer consists largely of artful suggestions in the form of leading questions; and a hypnotized witness would necessarily either be controlled by them or restored to normal consciousness by a conflict of suggestions. Clearly a hypnotized subject can have no legitimate standing as a witness in a court of justice.

I have now briefly examined the salient features of the problem from both the psychological and legal standpoints, and I hope that I have made it as clear to others as it is to me that its psychological features are less repulsive and dangerous to the public than many interested writers have pictured them, and that the few legal problems involved are easy of solution without a resort to legislation. *Hypnotism has no legitimate place in criminal jurisprudence.* The attempt to thrust it into that field is the result of a determination on the part of interested parties to confine the uses of hypnotism to a select few. This effort has been aided by popular ignorance and criminal instinct, until our courts of justice are now threatened with an inundation of cases involving questions that are new and strange to lawyers and judges and threaten jurors with paralysis. It is humiliating, but it is true, that in the last quarter of the nineteenth century we are threatened with a repetition of the insanity of the seventeenth. The ghost of Cotton Mather stalks abroad at noonday and gibbers from the forum.

THE RECURRENCE OF LYMPHOID HYPERTROPHY IN THE NASOPHARYNX.*

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An apology is perhaps due you for presuming to take up the time of this section by the consideration of any aspect of a subject which has been so long and so thoroughly discussed as that of lymphoid hypertrophy of the nasopharynx. I desire, however, to call attention to one phase of the subject, that of recurrence of the tissue after removal, a point which has not received the consideration it deserves, notwithstanding the voluminous writings upon the general subject, and its free discussion by nearly every one interested in diseases of the throat or ear. The textbooks, for the most part, give but little information upon the point of recurrence; some recent writers even fail to mention it, or assert that there is no such thing. Many physicians—since the operation is now so generally done—thinking there can be no recurrence, and influenced by the brilliant results often immediately following the operation, give the patients and friends too favorable a prognosis as to ultimate results.

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* Read before the Section in Laryngology and Rhinology of the New York Academy of Medicine, December 26, 1894.

I will spare you a repetition of the history of the general subject, long threadbare; nor will I dwell upon the pathology, ætiology, symptoms, or need of the operation, save as a reference may help to elucidate my subject. Nor will it be necessary to allude to more than a small fraction of the literature from Meyer to Hooper, and from Hooper to the present time. I report herewith a few cases, some of which are from my notes, some were kindly furnished me by friends, and others are from current literature. This list of cases might be much extended, indefinitely so, I think, by personal interviews with those who are operating, although few cases have as yet been put upon record. There are few operators of considerable experience who are not able to recall one or more such cases. This paper does not claim nor purpose to be at all exhaustive. It is designed merely to call renewed attention to a point of importance, with the hope that greater care, both in operating and in the after-treatment, will make recurrences less frequent.

The first three cases which I report are those of patients who were under my care at the Manhattan Hospital.

Case I.—Joseph F., twelve years of age, in poor health, anæmic, and undersized, was referred to me by Dr. Terriberry from the department for nervous diseases, where the patient was under treatment for chorea. His tonsils had been excised at a dispensary three years previously, and a year following the amygdalotomy he had been operated upon at another institution for naso-pharyngeal obstruction. This latter operation had been done under ether and by a careful and skillful operator. The symptoms of obstruction were entirely relieved for a period of eight months, when they slowly returned. I operated upon this boy, under ether, on May 3, 1894, and removed a large mass of tissue from the vault of the pharynx. He is at present free from symptoms of obstruction, and after operation made a decided gain in every way, including more rapid progress toward recovery from the chorea.

Case II.—Julia F., not a relative of the first, fourteen years of age, the fifth in a family of twelve children. No family history of tuberculosis or syphilis, but the girl's general appearance was very bad, doubtless largely caused by insufficient food and bad surroundings. At the age of eleven years she had an attack of rheumatism, complicated by a severe sore throat and an acute purulent inflammation of the middle ear, causing perforation of the tympanum. This patient has the high arched palate so often spoken of in connection with this class of cases. I operated upon her under ether during July, 1893, removing both tonsils and clearing out the nasopharynx. The symptoms of obstruction were relieved, the hearing improved, and the patient made a marked gain in health. She came back to the Manhattan on May 5, 1894, with a return of former symptoms. Examination showed a large mass of lymphoid tissue in the nasopharynx and nasal respiration almost impossible. I again operated under ether, and so thoroughly cleaned out the nasopharynx that I feared the patient might suffer from the apparently too radical removal, and so kept her under observation at the hospital for a time. No ill results followed this severe operation (although the most radical I have ever performed), and the patient made rapid improvement in all particulars, including hearing, which had again become impaired. Microscopic examination by Dr. Douglas, the pathologist of the hospital, showed lymphoid tissue only. Early in the present month (December, 1894) the patient returns, and there is found to be further return of the growth. At present it is not sufficient to cause obstruction to nasal respiration, but there is a lack of resonance to the voice and the hearing is again impaired. Why there is a return of the tissue a second time I am at a loss to say, for after the second removal nothing but bare bone could be felt in the vault of the pharynx.

Case III.—J. H., male, six years of age, a child in excellent health and of good family history, was operated upon under ether on May 18, 1893, for the removal of tonsils and of lymphoid tissue of the nasopharynx. There was relief of the symptoms of obstruction, and the hearing improved without other treatment. After a period of about fifteen months, the symptoms, including impairment of hearing, gradually returned. He was brought back to the Manhattan on December 11, 1894. It is interesting to note that upon examination with the finger the growth in the nasopharynx gave one the impression of being a mass of fringelike projections. The center was less prominent than the sides, as if the recurrence had been from increase of the lymphoid tissue remaining around the sides of the former mass, which was removed with the Gottstein curette. There was also obstruction in the nasal passage in this case, which had been overlooked in his former treatment. I operated upon this patient under ether on December 18, 1894, clearing out the nasopharynx, and removing the ecchondrosis of the septum which had obstructed the left naris.

A point of further interest in this case, and no doubt also bearing upon the cause of recurrence, is the fact that the child—a fine specimen of a healthy infant in the country, where he was born—was brought to the city at the age of three years, since which time his sleeping-room has been a very small inside room without ventilation, in a ground-floor flat, and this room he has shared with an adult.

The following six cases were furnished me by Dr. J. F. McKernon:

Case IV.—W. R., male, aged eleven years, well nourished, but mental faculties not up to the average.

Was operated upon under ether by Dr. McKernon October 2, 1892, for the removal of tonsils and lymphoid hypertrophy of the nasopharynx. A large mass of tissue, completely filling the vault of the pharynx, was removed with the Gottstein curette. After removal the finger was swept around the vault, and it was found to be free from all lymphoid hypertrophy.

A little more than a year later, October 12, 1893, the boy was brought back to the doctor with a return of the symptoms which called for the previous operation. Upon examination a large mass of lymphoid tissue was found well anterior in the vault of the pharynx. The Quinlan forceps was used without ether, the operation being finished with the Gottstein curette for the posterior wall of the pharynx, and a large mass of tissue, about two thirds the size of the former growth, was removed. Since then, up to May 5, 1894, the patient has been entirely free from the distressing symptoms caused by the presence of the growths. A peculiar point about this patient was his extreme dullness, both with regard to books and in playing with other children.

Case V.—E. R., nine years of age, brother of W. R., just reported, was brought to Dr. McKernon October 2, 1892, suffering from naso-pharyngeal catarrh and deafness of left ear. Examination showed both tonsils enlarged, and a mass of lymphoid tissue in the nasopharynx, situated almost entirely to the left of the median line, and extending well forward in the vault and down upon the posterior pharyngeal wall. Under ether the tonsils were removed and the nasopharynx was thoroughly cleared out. On September 26, 1893, this patient was again brought to the doctor suffering from a return of all the former symptoms, except the deafness. Examination revealed a mass of lymphoid tissue occupying the old site—*i. e.*, to the left of the median line, both in the vault of the pharynx and upon its posterior wall. Quinlan forceps followed by the Gottstein curette was now used, removing a mass nearly as large as the original one.

Patient last examined May 17, 1894, when he was free from all former symptoms. This boy was well nourished, and except for the local trouble mentioned seemed in perfect health both before and after the operation.

Case VI.—M. B., female, seven years old, well nourished, fleshy, and large for her age. Was brought to Dr. McKernon suffering from deafness in both ears and a constant desire to clear the throat and nose. Examination showed both tonsils enlarged and vault of pharynx well filled with lymphoid tissue which extended down upon posterior wall of pharynx. On January 10, 1893, under ether, tonsils were removed and vault of pharynx cleared with Löwenberg forceps, which was used because of the extreme narrowness. The Gottstein was then used on posterior wall of pharynx, when examination with finger showed vault and wall completely freed from lymphoid tissue. Eleven months later this child was brought back to the doctor suffering from catarrh of nose and throat, but no return of deafness. Examination of nasopharynx revealed a mass of tissue present which was about half as large as the growth previously removed. This was removed without ether by use of the Quinlan forceps. Examination of the vault of the pharynx on November 17, 1894, shows no recurrence. Patient in excellent health both before and after operation, but had always slept in a small room with no ventilation.

Case VII.—A. A., male, aged six years, was brought to the doctor for relief of deafness and nasal obstruction. Was operated upon under ether, the tonsils being excised, and nasopharynx cleared of the mass of tissue present by use of the Gottstein curette. There was complete relief from all symptoms for a period of ten months, when the old train of symptoms, except the deafness, returned. Examination of vault of pharynx showed a mass of lymphoid tissue upon the old site. He was now given ether and the Gottstein used to remove the mass.

Up to April 3, 1894, there was no recurrence. Hygienic surroundings of this patient were very bad, apartments lacking ventilation, being a ground-floor flat.

Case VIII.—E. K., female, nine years of age, an anæmic child from a tenement house, was operated upon at the Manhattan Hospital early in 1893 for the removal of lymphoid tissue from the nasopharynx, the Gradle forceps being used. She was brought back to the hospital in July of present year suffering from naso-pharyngeal obstruction. Examination showed the presence of a mass of tissue well anterior in the vault. Under ether this mass was removed with the Quinlan forceps, followed by the Gottstein. The patient has not been seen since the operation.

Case IX.—E. C., female, three years and a half of age, an anæmic and pasty-looking child. Was operated upon by a prominent specialist in London for the removal of lymphoid tissue from the nasopharynx. The doctor gave a favorable prognosis, stating positively that there would be no recurrence. Eleven months later, in October, 1894, the child, suffering from a return of former symptoms, was examined, and small groups of lymphoid tissue were found in the vault and upon posterior wall of the pharynx. The growths were removed under ether, and by the use of the Löwenberg forceps followed by the Gottstein. In this case the hygienic surroundings were of the best. The parents were wrought up to great indignation over the outcome in the case, since they had been promised that the first operation would be final.

Case X.—Dr. Butts (1) has reported one case, and kindly given me the notes of another. The first was that of an English girl, sixteen years of age, who gave a history of having been operated upon three times under chloroform before coming to this country. Dr. Butts operated upon this patient three times, at intervals of two months, completely removing all the tissue at each operation. Twice the lymphoid tissue had returned on the same site. The last operation was apparently successful, as four months elapsed without return, when the patient was lost sight of. Microscopic examination of the tissue removed showed it to be lymphoid hypertrophy.

Case XI.—His second case was that of a boy aged twelve years. Operation was done under ether on October 24, 1892; tonsils were removed and naso-pharynx cleared of obstructing lymphoid tissue. Nothing more was heard of the case until March 26, 1894, when the child was brought to the doctor with a return in a mild degree of his former symptoms. Examination with the rhinoscopic mirror revealed a very perceptible return of the mass of tissue in the vault of the pharynx. About two months before this the child had what was pronounced to be diphtheria, but in a mild form. From this time it was noted by the parents that there was a gradual return of the old symptoms.

Case XII.—The following case is from the notes of Dr. Emil Mayer: Frank H., aged three years. Lymphoid hypertrophy of the vault of the pharynx. The mass was removed under ether by means of Gradle forceps and Gottstein curette, leaving the vault perfectly clear, and resulting in an entire subsidence of all symptoms of obstruction. The child remained well for a period of two years, when, the symptoms of obstruction again returning, a second mass of lymphoid tissue was removed under ether.

Dr. Delavan (2) has reported an interesting case in which recurrence occurred twice.

Dr. Jonathan Wright (3) also has reported a case.

Dr. Lavarand (4), of Lille, has reported two cases of undoubted recurrence in children, aged respectively six and nine years.

Dr. Barrett (5), vice-president of the Australasian Medical Congress, said, in discussing the subject of lymphoid hypertrophy of the nasopharynx at the session in 1892, that he had seen growths return where he had satisfied himself by after-examination that the removal had been thorough; in one case the recurrence had occurred three times. Dr. Quaife (6), at the same meeting, after urging the importance of thorough removal, remarked that he had occasionally found that small tags, which were quite impalpable to the finger at the time of operation, have afterward blossomed into vegetations full grown, though certainly not very extensive.

In the discussion of a paper upon Post-nasal Growths in Children, read by Mr. Owen (7) before the Harveian Society of London, Mr. Butlin said that, although he had operated for removal very many times, and many of his cases had been under observation from one to seven years, he was cognizant of only one case in which there was undoubted recurrence after complete and careful removal.

Mr. Mark Hovell, at the same discussion, mentioned a case which had been operated upon twice before she came under his care, and in which he had found it necessary to repeat the operation three times after intervals of a few months, on account of redevelopment of the growth.

Dr. Scames Spicer said recurrence occurs only after imperfect removal.

Dr. Felix Semon said that, in his experience, in no class of cases was a repetition of the operation more frequently required than in those in which the finger-nail had been used as the instrument for removal. Mr. Lennox Browne said that recurrence was rare and mentioned no cases. This discussion is of some interest, since it may be taken as an expression of English specialists upon the subject, so many men of prominence having taken part in it.

Woakes (8) says: "I do not believe in the recurrence of the growths after thorough operation. When this appears to happen it is due to some of the smaller ones having escaped removal; these, developing later on, are then looked upon as a return of the disease."

Hooper (9), in his paper on Adenoid Vegetations in Children, their Diagnosis and Treatment, stated that "the growths do not recur after removal."

McBride (10) does not mention the possibility of recurrence.

J. Solis Cohen (11) says: "There does not seem to be any disposition to repullulation of these vegetations after thorough evulsion or destruction."

MacDonald (12), in his work, gives no special information on the subject in hand.

Burnett's (13) recent work is the most unsatisfactory of all, for we are told that "moderate curetting or the biting or burning off of a few of the most prominent nodules, combined with the use of iodine and the proper treatment of the whole naso-laryngeal tract, is sufficient in the great majority of cases."

Dr. James B. Ball (14), in a text-book just published in London, says: "Once thoroughly removed, adenoid vegetations do not recur. When, as sometimes happens, a second operation is required, this is due to small vegetations having been left behind, which swell up on removal of pressure from the surrounding masses."

Dr. Ingals (15), in his work, speaking of the use of such agents as galvano-cautery, scraping with the finger-nail, etc., says: "The operation thus is usually less complete than when done by suitable forceps, and therefore recurrence is more likely to take place."

Referring now to writers whose articles have appeared in the recent journals, we have the carefully prepared paper of Dr. De Roaldes (16), of New Orleans, who quotes and indorses Hooper's statement that "the growths do not recur"; Dr. J. Morrison Ray (17), of Louisville, who says: "If once thoroughly removed, there can be no return"; Dr. W. Meyjes (18), of Holland, who states that "the opinion that the adenoid vegetations will grow again after removal is false and only caused by the fact that the tissue was not completely removed"; and Dr. A. B. Thrasher (19): "Under complete anæsthesia there is time to entirely extirpate the growths so that very rarely will a second operation be required."

The foregoing references may be taken as fairly representative of what writers have stated upon the question of recurrence. Thus it is seen that if we depend upon this source alone for information we are likely to be misled. It is but just to say, however, that a few have laid greater stress upon the possibility of recurrence. Among these, Bosworth (20) refers to Meyer's report of thirteen cases of recurrence in his first series of a hundred and two cases. Meyer made this report as long ago as 1881, eleven years after his first paper. French (21), too, insists most strongly upon complete removal of the tissue, that recurrence may be prevented. It must be admitted that recurrence does take place, and that it occurs more frequently than the text books would lead one to infer; also that it may happen even though every vestige of the tissue has been removed from the nasopharynx.

It is probable that many more cases of recurrence will be mentioned within the next few years than have yet been put upon record. The rapid method of operating is popular, and so many men are now doing the operation that the chances for imperfect removal are largely increased, involving the greater probability of recurrence. If this be true, it is well that the fact be clearly understood, that we may be more guarded in prognosis as to ultimate results, and the more carefully make use of such measures as shall tend to prevent recurrence.

What, then, are the practical deductions to be drawn from our consideration of the subject? I confess I have but two points to offer. I would join with those who insist upon complete removal of the tissue—under an anæsthetic in children up to fifteen years of age—and suggest that each case be given more attention in the after-treatment.

As to the time for operating or the preliminary use of tonics, Dr. French (21) well says "the sooner the operation is performed the better, for there can be no more valuable tonic than that which results from re-establishment of nasal respiration." Then one must assure himself that there is no obstruction in the nasal passages, or, if present, correct it, that there may be no further hindrance to nasal respiration. After operation the child should take syrup ferri iodidi for some weeks, with whatever added remedy may seem to be indicated, bearing in mind the possibility of constitutional taint of rheumatism, tuberculosis, or syphilis. A further point of prime importance is that of the hygienic surroundings of the patient, particularly the child's sleeping room. We have conditions at opposite ends of the social scale productive of similar results. The poor often live in small, overcrowded, and ill-ventilated rooms; the rich frequently in overheated and also ill-ventilated apartments. The evil effects upon the patient are similar in the two cases. This difference between the temperature of the overheated houses and that out of doors presents the most constant and common source of frequent coryzas. These conditions ought as far as possible to be corrected, because "this lymphoid tissue evinces a strong tendency to augmentation in bulk upon slight provocation, so that any cause of increased blood supply will be sufficient to start renewed hypertrophy" (12). If, then, the child is again exposed to the same conditions which caused the hypertrophy, we must expect that recurrence will sometimes happen, and especially in those cases where the operation has not been thorough enough.

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ASPERMATISM.

By J. HENRY C. SIMES, M. D.,
PHILADELPHIA.

Cases which may be classed under this head are not often met with; even the surgeon who limits his practice to the treatment of genito-urinary surgery sees them but seldom; they may, however, be encountered, and are interesting both pathologically and physiologically.

This affection, which is necessarily a condition that must result in sterility, is one in which sexual connection s completed but not perfected. That is to say, there is lesire, erection, penetration, but no ejaculation of the semiial fluid from the urethra into the vagina. A classification of the affection has been made which is based upon the ætiology of the lesion: *Organic*, when it arises from some obstruction of the ejaculatory ducts or urethra; *atonic*, when depending upon diminished or lost sensibility of the spinal ejaculatory center; *anæsthetic*, when the nerves of the penis have lost their sensibility; and *psychical*, when the inhibitory action of the brain over the center for seminal ejaculation is such that the act is arrested. A more simple classification would be those cases which are dependent upon some evident pathological lesion, and those which are due to functional causes—that is, the pathological condition which occasions the affection has not yet been demonstrated. The majority of cases which are met with may be placed under the first class, since it will be found that by a careful examination it is possible to discover some pathological condition which will account for the lesion. The cases in which no pathological change of any kind can be discovered after a most careful examination are occasionally met with, but, while no pathological lesion is evident, there is generally, in going over the history of the patient, some indication which will account for his present condition. The cases in which no pathological change is evident, and the history gives no clew to the cause for the existing condition, are very seldom seen, but there have been such cases reported, and the following may come under this class:

X., born in Ireland, twenty-six years old, a blacksmith, unmarried. General health very good; the only sickness he has any recollection of was an attack of typhoid fever, which occurred three years ago, from which he made a complete recovery. In regard to his sexual power, he states that he has the desire to have sexual connection, but whether this desire is as great with him as it is with other men he is doubtful, from the fact that he is not so often inclined as many of his friends are to perform the act; however, when the opportunity offers he is always willing to accept it. He experiences no difficulty in having an erection of the penis when wishing to have sexual connection, and there is no trouble in entering the vagina. There is some pleasure during the copulating act, but it is not very great, being, as he says, a feeling of satisfaction more than pleasure. He ceases the act not because there has been a discharge of semen, but because the erection of the penis goes down, and he experiences a feeling of exhaustion; this takes place in about the normal time. He is most positive that there has never been any discharge of seminal fluid, or, indeed, any fluid during his attempts at sexual connection. There has never been any ejaculation of semen by performing the act of masturbation; in fact, there never has been any desire to commit this act during any period of his life. Nocturnal seminal emissions he has never had, and lascivious dreams have been extremely seldom, never accompanied with a seminal emission. There has never been any sexual excess committed in any way. There is no evidence or history of any venereal disease. No recollection of ever having any injury or disease of the genital organs.

Examination.—He is a very well developed man, rather undersized, and from his occupation, a blacksmith, his muscular development is especially good. Hair on the face and body fully up to the normal amount. The external genital organs appear normal; the penis is of normal size and firmness, and he states when erected it is of good size and hardness; the glans penis is partially covered by the prepuce, which may be completely retracted so as to uncover the glans; the testicles are of normal consistence, well developed, and rather above than below the ordinary size; the scrotum is not at all relaxed, but well contracted; the cord gives every indication of being in a normal condition; the vas deferens can be felt quite distinctly, and there is no evidence of any enlargement of the veins. A full-sized sound passes along the urethra into the bladder without any difficulty, no obstruction being met with, and the normal amount of sensibility is evident when the instrument passes over the prostatic region of the urethra. At no time during his life has there been any difficulty in urinating; micturition has never been abnormally frequent or painful. There has never been noticed any deposit in the urine, even after sexual connection; this has been looked for, but was always absent; nor after sexual connection has there been noticed any flow of seminal fluid or any fluid from the urethra. As far as could be ascertained by examination, there is no indication of any abnormal condition of the prostate or vesiculæ seminales.

This examination is certainly negative, and if it were not for the positive statement of the man that he has never, under any circumstances, had an ejaculation of seminal fluid, the only conclusion to be drawn from the examination would be that all the functions of the sexual organs ought to be performed in a normal manner.

This case certainly can not be placed under the class which has some evident pathological lesion as an ætiological factor, but necessarily comes under those cases in which the pathological change is not demonstrable—the so-called functional disorders. Neither do I think it can be classed with the atonic form of aspermatism, in which there is said to be a loss of power in the contractility of the muscles connected with the act of ejaculating the spermatic fluid, since in these cases there occurs at intervals the discharge of semen during sleep, and also patients who complain of this form usually give a history of venereal excess, of having practiced masturbation to excess, or of having had frequent attacks of gonorrhœa, none of which are applicable to our case. Is it to be classed under anæsthetic aspermatism—those cases in which the sensitive nerves of the penis have partially or completely lost their power of conducting the sensory impressions excited by the friction of the penis against the walls of the vagina to the lumbar division of the spinal cord? Our patient might come under this class, but in reviewing the cases which are so classed they all, without exception, state the patient experienced at intervals nocturnal pollutions; therefore this circumstance would exclude our patient from this class. Finally, is it to be classed under psychical aspermatism—those peculiar cases in which there is never to be found any organic pathological condition to account for the complaint? And the history of the patient's life gives no clew to the cause of his condition. This, indeed, seems the only class in which the case may be located. We have, so far as it is possible to ascertain, all the conditions necessary for sexual congress—desire, erection, and power; a development of the external genital organs which appears in every way capable, and nothing abnormal could be determined to exist in connection with the internal organs of generation. Everything is present but the seminal fluid, and it is this fact which makes the case differ from all others in the above classifications, so that I can not satisfactorily place it under any of them, but would consider it a case in which there is no secretion of the spermatic fluid, and as a consequence the sexual passion is necessarily not perfectly developed; or it may be more correct to say that there is a partial delay of development of the sexual passion, and as a result no secretion of the semen. Why such seemingly perfectly developed testicles have not performed their physiological function it is difficult to determine, but such seems to be the fact, and I am inclined to the opinion that under favorable circumstances—that is, a congenial married life, which as yet the patient has not experienced—the testicles would very probably assume their proper physiological function.

In considering this case, of course, the question of the truthfulness of the man's story is to be determined, and in this respect I have no reason to doubt him; indeed, quite the opposite. There is no motive for him to practice any deception, rather otherwise, since he is contemplating marriage, and wishes an opinion as to the propriety of contracting such an alliance; therefore, one would naturally suppose that there would be more of an incentive to deceive in the opposite direction. Again, may he not be mistaken as to the fact, and that there is a discharge of seminal fluid of which he is not conscious? But the most careful questioning does not permit this doubt; he is so very positive upon this point that there seems to be no reason why his statement should not be accepted as true. The patient is observing and quite intelligent, much more so than those usually met with in his position.

In answer to the question of the propriety of marriage in this case, I had a hesitancy in expressing my opinion. If one is satisfied, in a given case, that there exists a permanent sterility, no hesitation should be shown in giving a positive opinion as to the non-advisability of contracting marriage. Curling has very well and forcibly expressed himself upon this point; he writes as follows: "That a man who is unable to fulfill the command to be 'fruitful and multiply' is right in disappointing the hopes and periling the happiness and probably health of a woman can not, I think, be maintained by any casuist, and in some of the foregoing cases I have felt it my duty to give advice in accordance with this opinion." Where a doubt exists, however, as in this case, as to the permanency of the sterility, then one is justifiable in hesitating to condemn a man to a life of celibacy; but I do not think the surgeon should take the responsibility of the result; rather let him state the probabilities *pro* and *con* to the patient, and it will be for him to decide.

2033 CHESTNUT STREET.

The Gross Medical College, of Denver.—The faculty announce a course of "special and popular" lectures, to be given every Friday evening. The first lecture was given on January 18th by Dr. E. Jackson, professor of ophthalmology in the Philadelphia Polyclinic, on Ways in which the Eye Fails to Meet our Modern Requirements.

New Medical Baronets.—The *Hospital* announces that Dr. J. Russell Reynolds and Mr. John Eric Erichsen, of London, have been made baronets.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, JANUARY 26, 1895.

INSUFFLATION OF AIR IN TUBERCULOUS PERITONITIS.

The *Revue de chirurgie* for December publishes an article on this subject by M. Folet, of Lille, who remarks that since the day when, by a fortunate mistake in diagnosis, Sir Spencer Wells opened a tuberculous peritonæum, and especially since asepsis has rendered the opening of the abdomen a relatively benign operation, operative intervention has often been practiced, whether by design or under a misapprehension, in tuberculous peritonitis. König was the first to propose laparotomy in such cases as the most efficacious means of combating the disease. The author himself has performed laparotomy twice in peritoneal tuberculosis of an ascitic form, with good results. It is in the ascitic forms, he says, subacute or chronic, general or encysted, that the results are most favorable. In the dry and fibro-plastic forms, with infiltration and thickening of the omentum, the results are not so favorable.

The question of the mechanism of recovery, says M. Folet, is a hypothetical one. It is probable that ascites, in involving the blood-vessels, hinders absorption of the inflammatory products; furthermore, the ascitic fluid favors the spread of the disease, since it constitutes an excellent medium of culture, although the microbiological examinations of the serosity rarely show the presence of bacilli. The evacuation of the liquid, by allowing the formation of adhesions which stop the growth of tubercles, may also be an essential element of cure; finally, the favorable action may perhaps result from the fact that we remove the microbian ptomaines accumulated in the ascitic liquid, the absorption of which products might facilitate the propagation of the disease to other organs. All this, however, he says, is vague, uncertain, and not sufficiently demonstrated.

Another theory is tenable, says the author, which is that in all these operations some physicians practice only that evacuation of the liquid which necessarily follows abdominal section, while others supplement this evacuation with applications intended to modify the serous surface, such as detersive irrigation with boiled water; "modifying" irrigation with salt water or with solutions of thymol, boric acid, salicylic acid, corrosive sublimate, carbolic acid, zinc chloride, or the like; applications of camphorated naphthol, tincture of iodine, or powdered iodoform; cleansing and curetting, with the application of iodoform gauze or gauze saturated with salol; and peritoneal drainage. All these forms of intervention have given good results. As they have but one point in common—namely, the free opening and exposure of the peritonæum, it seems logical to suppose, says the author, that eontact with the air, the draining, and perhaps the influence of light, are capable of acting directly on the tuberculous processes and of killing the anaerobic bacilli, perhaps sometimes by causing the death of anaerobic microbes the association of which with the bacilli favors their multiplication, sometimes by favoring the development of an antagonistic anaerobic microbe. From this reasoning the conjecture was obvious that, in cases of tuberculous peritonitis with ascites in which for any reason abdominal section was out of the question, success might follow tapping and the insufflation of air. The author relates the history of a case in which he had occasion to insufflate air (not filtered), and obtained excellent results. He also relates another case which had come under the observation of Professor Moorhof, of Vienna, who resorted to the same method with equally good results. In both cases the insufflation of air caused no accidents, and appeared to give favorable results immediately, results which lasted for at least eight months.

The question arises as to whether or not tubereulous peritonitis may be cured spontaneously. In reality, says M. Folet, the cure of tuberculous peritonitis is always spontaneous, even after surgical intervention. Laparotomy never removes and does not destroy the diseased tissue; it only puts the peritonæum in a favorable condition for reaction, which favors the disappearance of the existing lesions. Nevertheless, among the ascitic forms of peritonitis—which give the largest number of recoveries in cases of operative intervention—there are cases in which recovery takes place without any surgical interference, although these are not cases where one has to deal with true peritonitis or with an invasion of the peritonæum by bacilli, but with a peritoneal effusion due to compression of the portal vein by a group of intra-abdominal ganglia. In the same way that cervical bacillary adenitis is dispersed, spontaneously or under the influence of an energetic iodine treatment, the intra-abdominal ganglionic hypertrophies may become dispersed, and the ascites, which has been caused by the circulatory obstacle, disappears. However, it may be observed that, at the present time, recovery as a result of operative intervention has been observed, not only in cases of ascitic effusions, but also in peritonitis with flocculent or sero-purulent liquid, with false membranes, with cohesion of the intestinal coils, and with granulations strewn over the visceral layer or on the surface of the intestine; in dry bacillary peritonitis; in peritonitis connected with tuberculosis of the ovaries and of the Falloppian tubes—all these lesions having been ascertained to exist where laparotomies have been performed. Recovery from tuberculous peritonitis, says the author, is not only apparent, but may be complete from an anatomical point of view. Laparotomy is certainly the preferable operation, says M. Folet, but under certain conditions the physician may resort to the anodyne and effieacious method of insufflation of air.

ONE OF THE BEAUTIES OF THE BRITISH VIVISECTION LAW.

In the *British Medical Journal* for January 12th we find an editorial article which informs us of certain perplexities that are troubling some of our British brethren as a consequence of the vivisection law, but we fancy that a little humor was meant to be apparent between the lines. It seems that under the law in question no painful operation in the nature of an experiment is allowed to be performed upon an animal without the use of an anæsthetic, except under the protection of a special certificate stating that insensibility can not be produced without necessarily frustrating the objects of the experiment. The more prudent and conscientious of those of our British colleagues who occupy themselves with such procedures as experimental inoculations, whether for the purpose of diagnosticating glanders or tuberculosis or for that of propagating vaccine, are troubled apparently as to whether or not the law was really intended to apply to such operations as the prick of a hypodermic needle and the scarification of vaccinal inoculation. The writer of the editorial seems to assume—and in so doing it appears to us he is perfectly warranted—that to anæsthetize a guinea-pig upon which a simple puncture was to be inflicted would be to violate the spirit of the law while conforming to the letter. Few would be found to contend, he thinks, that the simple prick of a hypodermic needle was the kind of pain that the framers of the act had in view, and he suggests that the only reason for looking upon these experiments as coming under the law would be the fact that the inoculation subjected the animal to the subsequent annoyance of disease. This he admits to be true theoretically, but goes on to remark that animals so inoculated never afford any evidence of pain whatever, and adds that it is certain that the thousands of animals that have been infected with tubercle by means of inoculation or feeding have suffered no pain at all. He thinks, moreover, that it would be impossible to prove that animals infected with the more acute febrile conditions had suffered pain. We learn from the article, further, that the Council of the British Institute of Preventive Medicine, when it undertook the preparation of diphtheria antitoxine, considered the relations of its work to the vivisection law, and came to the sensible conclusion that the process, not being an experiment, and not calculated to give pain, did not come within the law, and that this view has practically been adopted by the law officers of the Crown. The writer questions if the time has not arrived for putting a reasonable interpretation upon the law and incurring the risk of a prosecution, and advises a little boldness as the best course to pursue, and the one most likely to be successful, as the only alternative of the unpromising task of trying to get the law amended by the House of Commons in the present state of public opinion.

THE TREATMENT OF SMALL-POX WITH ANTITOXINE SERUM.

In the *Abstract of Sanitary Reports* for January 18th there is a preliminary report by Passed Assistant Surgeon J. J. Kinyoun, of the Marine-Hospital Service, on the treatment of small-pox by injections of serum from calves that had been recently vaccinated. After the local manifestations of vaccination had disappeared from the animal, and it seemed to all appearances sound and well, blood was withdrawn from a vein, and allowed to stand for twenty-four hours in order that the serum might be drawn off. Some of this serum was filtered, and two cubic centimetres of the filtered and unfiltered serum respectively were added to thirty-five minims of pure vaccine lymph. Each mixture was used to inoculate unvaccinated heifers, and, as it did not produce any symptoms, it was inferred that the serum completely neutralized the lymph.

The serum was then administered to a negro, aged twenty-eight, suffering with confluent small-pox, in a dose of fifteen cubic centimetres hypodermically. In an hour the respiration became deeper and the pulse stronger and fuller. Two more doses of serum were administered on the same day, and one dose was given on the following day, so that in all sixty cubic centimetres were injected. The patient died in three days after the first injection, but the attending physician is reported as having thought that the serum had prolonged life for seventy-two hours. In a second case, also in a negro, a hundred and five cubic centimetres were administered in the course of two days, and the patient recovered.

The serum, it is said, tends to increase the volume of the pulse, and there is a modification in the variolous eruption. Maurice Raynaud's experiments have shown that the blood serum of an animal on which immunity has been conferred destroys the potency of vaccine lymph, and under certain circumstances renders an inoculated animal insusceptible to vaccinia. These results would suggest that the serum possesses an antitoxic property, and they may be held to justify Dr. Kinyoun's use of the serum for therapeutic purposes.

MINOR PARAGRAPHS.

THE INFLUENCE OF SMALL-POX IN PARENTS ON THEIR CHILDREN'S RECEPTIVITY FOR THE DISEASE.

The *Revue internationale de médecine et de chirurgie pratiques* for December 25th contains an abstract of an article on this subject contributed by M. B. Auche and M. Delmas to the *Archives cliniques de Bordeaux*. The following conclusions, the writers say, are drawn from a certain number of personal observations: 1. Small-pox in the father seems to have no influence on the receptive condition of the child in regard to vaccination. 2. Small-pox in both father and mother before conception does not act on the child's condition any more decidedly than it does when the mother alone has the disease. 3. Small pox, when it precedes pregnancy, sometimes establishes immunity in the child. 4. If small-pox breaks out during pregnancy, several alternatives are possible: *a*—the child is in the stage of incubation, and it is susceptible to the vaccinal virus up to about five or six days before the appearance of the eruption; *b*—it is born with small-pox or with marks, and it is evidently resistant to the vaccine; *c*—it has not had, has not, and will not have small-pox. If it is born during the period of incubation, of invasion, of eruption, or even of pustulation in the mother, it may be vaccinated successfully. If it is born during desiccation and convalescence, it is sometimes resistant, although often susceptible to the vaccinal virus. At a later period immunity is generally conferred upon the child, although not at once; it seems to require a certain length of time in order to be produced. Once it is acquired, the immunity is transitory, and lasts only from a few months to two or three years. The preceding statements may probably apply to immunity against small-pox as well as to that against vaccination.

A NEW METHOD OF INDUCING LOCAL ANÆSTHESIA.

The *Gazette de gynécologie* for January contains an abstract of an article by M. Létang, which was published in the *Poitou médical.* The method described consists in injecting into the region to be operated on a liquid the temperature of which is considerably below the freezing point. After several trials M. Létang has found that glycerin, oil, and pure water can be employed in considerable quantities without danger, and that the rapid injection of several cubic centimetres of water at 34° F. provokes slight lesions in the tissues, but that this effect is prevented if a drop of ether is added to the water. The following solution keeps well, and may be prepared quickly and aseptically with boiling water: Boiled distilled water, six ounces; pure neutral glycerin, three ounces; ether, ninety grains. Ten injections of one hundred and fifty grains each of this solution may be administered to an adult without any inconvenience. In order to obtain a proper temperature, a carbonic-acid apparatus may be used, which will produce an intense cold in a few seconds; also a syringe for interstitial injections, provided with a thermometer the reservoir of which is plunged into the liquid, and the index-rod of which, resting in the cylinder of the syringe, may be examined easily. It requires about forty seconds to bring about the proper temperature, which is 14°. Bulbs of ethyl chloride also may be employed to produce the right degree of cold.

THE STUDY OF PHARMACY.

The *Pharmaceutical Era* has begun the weekly publication of a series of articles entitled The Study of Pharmacy. The *Era* announces that these articles are prepared by the foremost writers and teachers in pharmacy, and are designed to afford a logical, systematic, and thorough groundwork of education in pharmacy to persons who have not had the most desirable advantages for securing such an education. The introductory article, by Dr. Charles Rice, for a copy of which in pamphlet form we beg to thank our excellent contemporary, deals with the history of pharmacy in the United States, with the pharmacopœias of the world, and especially with our own pharmacopœia. Dr. Rice's writing is always readable and of sterling value, and the article in question should command the attention of a wide circle of readers, not only in the profession of pharmacy, but in that of medicine also, for, says the editor of the *Era*, "these two professions have marched hand in hand in the development of our pharmacopœia." Of late years the teaching of pharmacy in New York has made great advances. Not the least conspicuous among the tokens of its progress is the recent opening of the fine new building for the College of Pharmacy, said to be the finest of its kind in the world. It is gratifying that the colleges of pharmacy have such efficient auxiliaries as the pharmaceutical journals, of which the *Era* is a worthy example.

THE *UNION MÉDICALE.*

This journal, which has long stood among the foremost of the Paris medical periodicals, has, with the advent of the new year, made some notable changes in its appearance and in the manner of its publication. Formerly it was an octavo issued three times a week, and occasionally four times; it has now doubled the size of its page, which has been made double-columned, and appears only once a week, on Saturday. The subscription price has been reduced from thirty-two to five francs a year. The editor is M. Eugène Rochard, a hospital surgeon, and the publisher is M. Octave Doin. In its new dress the *Union* is much handsomer than before, but we hope to see it stitched before long. The first number for 1895 contains no *feuilleton*, and we may be allowed to express the opinion that the semi-monthly appearance of that appendage, which is announced, will prove enough for the ordinary reader.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 22, 1895:

DISEASES.	Week ending Jan. 15.		Week ending Jan. 22.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	12	3	6	1
Scarlet fever	116	16	83	11
Cerebro-spinal meningitis	2	2	0	0
Measles	76	3	79	5
Diphtheria	209	34	208	24
Small-pox	8	1	3	0
Tuberculosis	180	118	122	96

The Cleveland Medical Society held its annual meeting on Friday evening, the 11th inst. Officers for the ensuing year were elected as follows: President, Dr. William E. Wirt; vice-presidents, Dr. A. F. House and Dr. Henry S. Upson; recording secretary, Dr. W. F. Brokaw; corresponding secretary, Dr. Frank S. Clark; treasurer, Dr. N. Stone Scott; librarian, Dr. William E. Bruner; censors, Dr. M. Rosenwasser, Dr. Howard S. Straight, Dr. L. B. Tuckerman, Dr. A. J. Cook, and Dr. W. J. Scott; pathologist, Dr. A. P. Ohlmacher; trustees, Dr. H. G. Sherman, Dr. C. Gentsch, and Dr. C. F. Dutton. In the address by the retiring president, Dr. W. H. Humiston, it was stated that the society had 291 members, and that the average attendance at the meetings during the year had been 135, so that in the matter of attendance it was second to no medical society in the United States. The meetings are held once in two weeks.

The Late Dr. Henry Goldthwaite.—At a special meeting of the Medical Board of the City Hospital held at the New York Academy of Medicine on January 17, 1895, the following preamble and resolutions were unanimously adopted:

Whereas, We have learned with deepest regret of the death of our revered colleague, Henry Goldthwaite, M. D.; therefore

Resolved, That in the death of Dr. Henry Goldthwaite we have lost a valuable and useful friend. His heart was warm and benevolent; to the poor and suffering he was devoted and consoling. With the highest sense of duty, he never spared himself, but always met with manly courage the responsibilities of his position. He was a wise counselor, a warm and valued friend, a colleague of acknowledged forethought and wisdom, and a man of inflexible honesty and pure and upright character.

Resolved, That we deeply sympathize with the widow of the deceased and the other members of the family; and that a copy of these resolutions be transmitted to them, and that they be published in the medical journals.

[Signed.]
Alex. W. Stein,
J. H. Allen,
J. A. Andrews,
} *Committee.*

J. R. Hayden, M. D., *Secretary of the Medical Board.*

The New York State Medical Association.—The eleventh annual meeting of the Fifth District Branch will be held in Brooklyn on Tuesday, May 28th, under the presidency of Dr. Austin Flint. All fellows desiring to read papers should notify the secretary, Dr. E. H. Squibb, P. O. Box 760, Brooklyn.

The Columbia College School of Medicine.—It is announced that Dr. Richard Cunningham, of the class of 1888, has been appointed Alumni Association fellow in physiology.

A Reception in Honor of Dr. Emil Holub was given on Friday evening, the 25th inst., by Dr. Carl Beck at his house, in East Thirty-first Street.

Change of Address.—Dr. Frank C. Todd, from Minneapolis, Minn., to the corner of Seventh and Main Streets, Fort Worth, Texas.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 13 to January 19, 1895:*

Smith, Joseph R., Colonel and Assistant Surgeon General, will be relieved from duty as Medical Director, Department of the East, to take effect about February 5, 1895, and will proceed to his home, where he is authorized to await retirement.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending January 19, 1895:*

Waggener, James R., Surgeon. Placed on waiting orders.

Curtis, L. W., Passed Assistant Surgeon. Detached from the Naval Hospital, Chelsea, Mass., and placed on waiting orders.

Stone, L. H., Passed Assistant Surgeon. Ordered to the U. S. Steamer Alliance. January 22d.

Ayers, J. G., Surgeon. Ordered to the U. S. Steamer Olympia.

Pigott, M. R., Passed Assistant Surgeon. Ordered to the U. S. Steamer Olympia.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending January 15, 1895:*

Carter, H. R., Surgeon. To assume temporary command of Cape Charles Quarantine. January 7, 1895. Relieved from such duty. January 14, 1895.

Perry, T. B., Passed Assistant Surgeon. To proceed to Delaware Breakwater Quarantine Station for temporary duty, and to rejoin station (Cape Charles Quarantine) upon completion of same. January 14, 1895.

Wertenbaker, C. P., Passed Assistant Surgeon. Granted leave of absence for seven days. January 3, 1895.

Society Meetings for the Coming Week:

Monday, *January 28th:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

Tuesday, *January 29th:* Medical Society of the County of Onondaga (semi-annual—Syracuse), N. Y.; Boston Society of Medical Sciences (private).

Wednesday, *January 30th:* Auburn, N. Y., City Medical Association; Berkshire, Mass., District (Pittsfield), and Middlesex, Mass., North District (Lowell) Medical Societies; Gloucester, N. J., County Medical Society (quarterly).

Friday, *February 1st:* Practitioners' Society of New York (private); Baltimore Clinical Society.

Saturday, *February 2d:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private), New York; Miller's River, Mass., Medical Society.

Answers to Correspondents:

No. 430.—We have no trustworthy information that Behring's diphtheria antitoxine can be bought in this country at present. We understand, however, that Dr. Paul Gibier, of the New York Pasteur Institute, is prepared to supply the serum obtained by Roux's method. Doubtless an inquiry addressed to that gentleman would elicit more precise information.

Births, Marriages, and Deaths.

Married.

Campbell—Lockheart.—In Ontario, N. Y., on Wednesday, January 9th, Dr. Joseph Campbell, of Ontario, and Miss Rose Lockheart, of Brighton, Canada.

Hayes—Crowley.—In Rochester, N. Y., on Thursday, January 17th, Dr. D. J. Hayes, of Chicago, and Miss Julia Crowley, of Rochester.

Kirwan—Ashbrook.—In Philadelphia, on Tuesday, January 22d, Dr. George H. Kirwan and Miss Maude De Vere Ashbrook.

Died.

Atwood.—In Ferguson, Mo., on Friday, January 11th, the wife of Dr. Le Grand Atwood, in her fifty-ninth year.

Barrows.—In Janesville, Wis., on Monday, January 14th, Dr. Lyman J. Barrows, aged sixty-nine years.

Doumeing.—In New Orleans, on Friday, January 18th, Dr. Émile Doumeing, in his sixty-first year.

Harpke.—In Milwaukee, on Saturday, January 12th, Dr. Henry Harpke.

Jobse.—In Milwaukee, on Saturday, January 19th, Irvin William, son of Dr. and Mrs. William Jobse, in his sixth year.

Loomis.—In New York, on Wednesday, January 23d, Dr. Alfred Loomis, aged sixty-three years.

Nason.—In Troy, N. Y., on Friday, January 18th, Dr. Henry B. Nason.

Obituaries.

ALFRED L. LOOMIS, M. D., LL. D.

Professor Loomis died at his home, in New York, on Wednesday morning, the 23d inst., as the result of pneumonia of only a few days' duration. Although he was neither feeble nor aged—being but just turned sixty-three, of a robust constitution and irreproachable habits—pronounced cardiac weakness was a prominent feature of his illness almost from the very outset of the attack.

Dr. Loomis was born in Bennington, Vermont, on October 16, 1831. After having been graduated from Union College, in 1850, he came to New York and studied medicine with the late Dr. Willard Parker. In 1852 he received his medical degree from the College of Physicians and Surgeons. After serving the regular term of two years on the house staff of the Ward's Island and Blackwell's Island hospitals, he entered upon private practice in New York and devoted himself more particularly to the study of the physical diagnosis of diseases of the chest, a branch of medicine in which he soon won distinction and eventually unexcelled eminence. It was not at first, however, that he was enabled to teach this department of practice—according to the writer's earliest remembrance of him as a teacher, he was giving clinical lectures on venereal diseases in the Charity Hospital, now known as the City Hospital, on Blackwell's Island. He was subsequently appointed a physician to Bellevue Hospital, and held the appointment up to the time of his death. In 1862 he was appointed lecturer on physical diagnosis in the College of Physicians and Surgeons. In 1866 he was made adjunct professor of medicine in the Medical Department of the University of the City of New York, and subsequently he was appointed professor. He held the chair of medicine for the rest of his life, and it was in his didactic instruction in the college and his clinical teaching in the wards of Bellevue that he made himself felt in the profession. He was a member of many medical societies and a consulting physician to various hospitals. He was president of the New York Academy of Medicine for two terms at a point in its history when much energy, intensity of purpose, and sagacity were called for to guide it in safety through the perils of financial undertakings that could not have been much extended without crippling it. Well has the present president of the academy, in the inaugural address published in this issue of the *Journal*, spoken of him as "the sagacious Loomis."

Dr. Loomis was not endowed by Nature with that suavity and grace of deportment by which many a physician of mediocrity has attained to a remunerative practice with comparatively slight effort; he really "climbed over the shoulders of the poor into the pockets of the rich," and the process was not a speedy one. The greater portion of his professional career, therefore, was one of hard work and poor pay, but his progress was steadily if slowly upward, and during the later years of his life he was one of the best-patronized consultants in New York. It was his real worth, not the glamour of his personality, that gave him his eminence. His loss is serious to the community, to the profession, and especially to the school of whose faculty he was the shining light. His memory will be fitly perpetuated by the Loomis Laboratory attached to that school.

Letters to the Editor.

TABLES OF INTESTINAL OPERATIONS.

Brooklyn, *January 19, 1895.*

To the Editor of the New York Medical Journal:

Sir: In your issue of this date is a letter from Dr. F. H. Wiggin, calling attention to the fact that a table appended to an article by the Drs. Mayo in the January number of the *Annals of Surgery* is practically identical with one published by himself in the *New York Medical Journal* of December 1st. If this letter has any force it is in the implication that the Drs. Mayo copied Dr. Wiggin's table without giving him any credit for it. While the Drs. Mayo are abundantly able to take care of themselves, I will venture, while the matter is warm, since you have deemed it of importance enough to publish the implied charge, to say that this paper by the Drs. Mayo was received by me from them early in October; that it was in print to appear in the December issue of the *Annals of Surgery*, but was crowded over until January. It is quite evident, therefore, that its authors in their Minnesota home knew nothing of the New York surgeon's work published in the *New York Medical Journal*, December 1st. They frankly state in their paper, in so many words, that their table was furnished to them by Dr. Murphy, of Chicago. It is quite evident that Dr. Wiggin's table is from the same source. The accident of his paper, with Dr. Murphy's table, appearing in print before the paper of the Drs. Mayo, with Dr. Murphy's table, certainly gives him no special property in the table. Kindly give this note a place in the next issue of the *New York Medical Journal.*

Lewis S. Pilcher, M. D.,
Editor of the *Annals of Surgery.*

New York, *January 22, 1895.*

To the Editor of the New York Medical Journal:

Sir: As a misunderstanding seems to have arisen about the authorship of the tables of intestinal operations which appeared in connection with my paper on Intestinal Anastomosis, published in the *New York Medical Journal* of December 1, 1894, I wish to state that the tables were the joint production of Dr. Murphy and myself, and were the result of a correspondence begun in July last. I wrote to Dr. Murphy at that time, telling him that I was preparing this paper, and asking him if he cared to give me any new information regarding his method. In reply he wrote me that he had collected a number of recent cases—some of which had not been reported—which he would send me in September. In the interval I collected a number of cases which had not been published, and in return I sent these to Dr. Murphy. I understood that these cases had not been furnished by Dr. Murphy for publication, or given by him to any one else for that purpose. I had distinctly told him that I did not wish to use them under those circumstances. I was naturally surprised, therefore, when I saw what seemed to be a copy of my table in the January number of the *Annals of Surgery.* I may add that I gave due credit in my paper to Dr. Murphy for his share in the work.

Frederick Holme Wiggin, M. D.

A CASE OF RAPID REPRODUCTION.

Acme, W. Va., *January 5, 1895.*

To the Editor of the New York Medical Journal:

Sir: On the 22d of September, 1892, I attended Mrs. A. P. C. in confinement. The child, a female, died on the third day with icterus. On the 20th of January, 1894, I delivered Mrs. C. of quadruplets—four girls, each weighing three pounds and three quarters. The first one born lived an hour, the second lived half an hour, and the two others were stillborn. The great characteristic feature of these quadruplets was their symmetry in development and weights. On January 1, 1895, I attended Mrs. C. again, and delivered her of a living female.

L. M. Campbell, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN LARYNGOLOGY AND RHINOLOGY.

Meeting of December 26, 1894.

The Recurrence of Lymphoid Hypertrophy in the Nasopharynx.—Dr. F. E. Hopkins read a paper with this title (see page 109).

Dr. Jonathan Wright, of Brooklyn, said he was fully in accord with the statement made by the author of the paper that there was occasionally recurrence of lymphoid tissue in the nasopharynx, even after complete eradication. It was surprising that this should occur so rarely, when we bore in mind the pathology of these growths. The lymphoid cells of which they were almost entirely composed infiltrated all the layers of the mucous membrane down to the periosteum. Therefore, when we spoke of the complete removal of adenoid growths from the nasopharynx, and took the expression literally, we meant skinning the entire region down to the bare bone. Of course, very few were prepared to do so radical an operation; furthermore, some very disastrous results had been reported from too free a removal of adenoid tissue.

The cases of recurrence that had come under the speaker's observation he had been disposed to ascribe to imperfect removal in the beginning. As a rule, however, the ordinary operation with the forceps followed by scraping with the finger-nail or some form of curette was sufficient. When an appreciable amount of tissue was left behind, the subsequent irritation and inflammation might be the cause of a recurrence, or it might be the result of a syphilitic or tubercular dyscrasia. In other cases a malignant element might be present. A number of cases have come under his observation in which there had been recurrence of tonsillar hypertrophy after removal.

Dr. W. K. **Simpson** said that Dr. Hopkins's paper had emphasized two very important facts: one was the necessity of completely removing the adenoid vegetations in the nasopharynx, and the other was the difficulty of determining whether this had been done or not. After a certain amount of the tissue had been lacerated, it was not easy to determine with the finger whether any remained. The consensus of opinion regarding this question seemed to be—leaving out of consideration any particular dyscrasia—that the recurrence of these growths depended on the fact that they had not been thoroughly removed, certain tags or shreds having been left behind. Very rarely did recurrence take place after a second operation.

Dr. R. C. **Myles** said that only in a few instances had he seen any recurrence after a thorough removal under anæsthesia, and then never to the extent of producing even half the objective or subjective symptoms which had existed before the operation. The development of new lymphoid tissue was going on in some children all the time. In some cases he had seen it grow around the margins, especially at the posterior nares, where it frequently escaped notice. The desirable thing was to find out how much adenoid tissue each child was entitled to.

Dr. **Coakley** said that in the case of a girl, aged sixteen years, the obstruction in the nasopharynx had been very marked, projecting below the border of the soft palate. This had been removed, and during an examination made a few days later a small tag had been seen near the Eustachian orifice on the left side which had been left undisturbed. Six months later the girl had returned, and quite a good-sized mass had been found where the small tag had previously been observed.

Dr. **Gleitsmann** said he believed in the radical removal of adenoid vegetations; the more radical the operation, the better would be the results obtained. He therefore preferred to operate under anæsthesia with the postnasal forceps, and operated with the child in the sitting posture, held by two assistants. In over seven hundred cases he had never had an untoward accident; and of late years he had had fewer recurrences than formerly. It was well in all cases to give a guarded prognosis, and to keep the patient under observation for some months after the operation.

Dr. **Walter F. Chappell** said he agreed with the previous speakers that the recurrence of adenoid growths in the nasopharynx was extremely rare, and that it was probably the result usually of incomplete removal. He made it a practice to ascertain, some weeks after the operation, if there was any adenoid tissue left behind, and, if there was, to make an application of silver nitrate.

Dr. F. J. **Quinlan** said he thoroughly indorsed the statements made as to the rarity of recurrence. In two cases in which recurrence had been more or less marked he had found an obstruction of the anterior nares, and after he had removed this there had been an immediate shrinkage of the adenoid tissue in the nasopharynx. Anterior obstruction, he thought, might often be the causative factor of a recurrence in these cases.

Dr. **James E. Newcomb** referred to an article recently published in a French journal, in which the writer recommended wiping out the nasopharynx with the finger around which a piece of iodoform gauze was wrapped; in this way the writer professed to wipe off many of these small tags and get a comparatively smooth surface. The speaker agreed with Dr. Quinlan that it was very important, in the treatment of these cases, to inspect the anterior nares thoroughly and remove any obstruction that might be found there.

Dr. J. F. **McKernon** said that in some instances recurrence of adenoid growths in the nasopharynx was undoubtedly due to an incomplete operation, while in others the cause was yet unexplained. In the cases reported by Dr. Hopkins, some of which he had had the opportunity of witnessing, the operation had been very thoroughly performed. In one instance the operation had been done in two sittings; after as much as possible of the tissue had been removed, the patient had been allowed to recover partially from the effects of the ether and the vault had been carefully examined; it had then been swabbed out and all hæmorrhage checked before the instrument had been reintroduced. That case had been kept under observation for several weeks, and no tags had been discovered even two months after the operation.

Dr. **Bryson Delavan** said that the partial removal of adenoid vegetations from the vault of the pharynx might possibly in a few exceptional cases result in cure. Experience proved, however, that as a rule the contrary was true. The only safe course was to remove such tissue as carefully and as thoroughly as possible. This course, he thought, could not be advocated too urgently. In cases where so-called recurrence took place, one of two factors was apt to be the cause: first, the removal had been incomplete and large folds of adenoid tissue had been left, which before the operation had been compressed by other masses. The latter having been removed and the pressure thus relieved, the remaining masses had become engorged and had increased in size to such an extent as to re-establish the condition of occlusion which the operation had temporarily overcome. In the second class of cases, rare but not unknown, a persistent tendency to recurrence was often due apparently to the presence of the tubercular diathesis or to inherited syphilis. In such cases, prior to the first operation, a guarded prognosis as to recurrence should be given.

The operation in children was best performed under anæsthesia, and sufficient time should be given to it to insure completeness. In most cases the more rapid the operation the less satisfactory was the result likely to be. In his hands the use of some of the most popular of the new instruments for rapid operation had given results far less satisfactory than the forceps applied under anæsthesia. He believed that many of the recurrences reported could be traced to this fact.

Nasal stenosis often occurred in connection with adenoid hypertrophy, especially in older children, and it should, of course, be recognized and treated, and the patient not dismissed until all obstruction had been removed as far as possible. The speaker stated that it had been suggested to him that a secondary operation in cases of recurrence would be more likely to be attended with hæmorrhage than a primary operation, on account of the division of cicatricial tissue. Personally, he did not agree to this hypothesis.

New Inventions, etc.

A NEW NASAL SPECULUM.

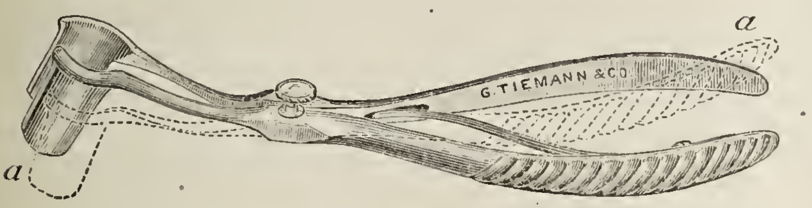
By Edmund D. Spear, M. D.,

AURAL SURGEON TO THE MASSACHUSETTS CHARITABLE EYE AND EAR INFIRMARY.

A properly constructed nasal speculum is of great importance to the medical profession, especially to all whose daily experience with nasal disorders requires frequent examinations of the nose.

The difficulty of seeing the interior of this organ is increased by the use of imperfect instruments, and has been the incentive to the invention of the new nasal speculum here described and figured. Quite a variety of specula are in more or less constant use, but none have been constructed upon mechanical principles which always insure their usefulness, nor are any made with reference to an important anatomical peculiarity of the nose which the writer has taken notice of in constructing his new instrument.

It will assist my explanation to refer to the shape and position of certain parts of the nose, and will aid in the use of the speculum. The ala or wing is situated upon a different plane from the cartilages forming the tip or end of the nose. For this reason it is necessary, in order to adjust the ordinary instrument, to thrust the blades quite deeply into the nose so that the ala shall be lifted out from the nostril and clear vision obtained. The blade of the instrument thus held upon the sæptum is carried more deeply than it should be, in order that the other blade shall catch inside the ala and not slip.



In this new speculum the movable joint permits a crossing of the handles and an advance of one blade beyond its fellow (*vide* cut, *a a*), so that when the sæptum has been reached the ala can be held outward without the necessity of thrusting the blades of the instrument deeply into the nostril where the bony opening forms an undilatable passage. One of the blades is flattened, to be placed against the flat sæptum. By inverting the speculum when examining the left side this blade will likewise be brought against the sæptum.

The writer is indebted to Messrs. Tiemann & Co., of New York city, whose unequaled workmanship and valuable suggestions have enabled him to obtain such perfection in its construction.

A NEW INTRA-UTERINE IRRIGATOR, DILATOR, AND RÉCAMIER CURETTE COMBINED.

By Harris B. Adler, M. D.

During many years of an active gynæcological and obstetrical practice I have frequently met with cases of adherent or retained placental tissue where curetting and irrigating the uterus were necessary, and I have always found it difficult to obtain an instrument which possessed the combined qualities of effecting sufficient dilatation and irrigation of the cavity. I have, therefore, been led to devise an instrument which is simple in design and perfectly aseptic.

The subjoined cut shows the instrument both closed and partly opened. It is capable of carrying a stream sufficiently large to wash away *debris* to an extent not attained by any instrument heretofore in the hands of the profession. Fig. 2, *c*, is practically a straight cannula, through which a rod an eighth of an inch in diameter can easily be passed for cleansing purposes; or a piece of sponge, attached to a wire supplied with an eyelet, can be drawn through, and the instrument kept clean and perfectly aseptic.

The instrument is as easily manipulated as any ordinary uterine dilator, and, when it is introduced into the uterine cavity and opened to its fullest extent, by gentle traction the uterus can be brought down without the use of a tenaculum. The instrument consists of two parts, the injector and a Récamier curette, held together by a modified French lock, *b*, the blades being kept closed to form the dilator by means of an adjustable spring.

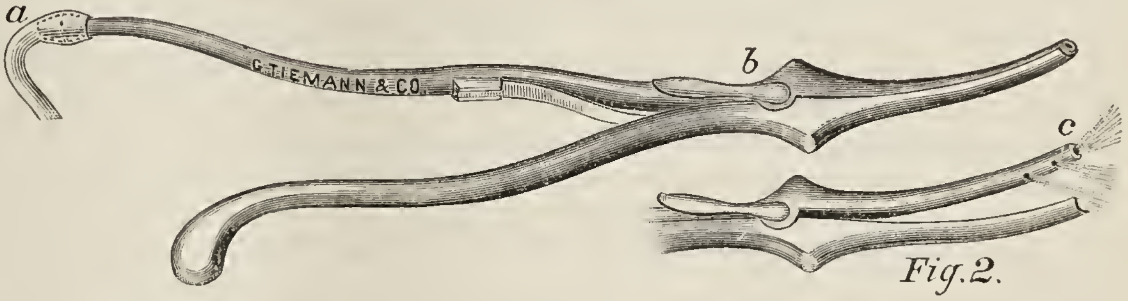


Fig. 2.

Thanks are due to Messrs. Tiemann & Co. for the careful and skillful manner in which they have constructed the instrument, and it is hoped that it will prove useful in the hands of obstetricians and gynæcologists.

212 East Broadway.

Miscellany.

Corporal Punishment for Certain Forms of Crime.—At a meeting held in the Academy of Medicine's building on Wednesday evening, the 9th inst., under the auspices of the Section in Hygiene, Dr. Andrew F. Currier read a communication of which the following is the substance:

I appeal to the medical profession that it lose not the opportunity of co-operating in this movement, and I know not how its interest can be better shown than by pleading for the enactment of a law which shall secure or tend to secure a measure of justice for a class of sufferers with which it is all too familiar. If any treatment of the subject more equitable than the one which is to be proposed shall suggest itself to any one here present, it is earnestly hoped that it will be advocated fearlessly. All that is asked is that something positive be offered by those who find themselves unable to agree with the recommendations which are to be made; destructive criticism alone will not help those for whom help is sought.

Laws have been enacted and are enforced for the prevention of cruelty to animals, wise and watchful eyes are solicitous in preventing cruelty to children, why should women look in vain for that protection from brutes and ruffians which we do not deny to animals? [The author then cited a number of newspaper accounts of cases of gross cruelty to women, and continued as follows:]

These cases have not been picked out after an extensive search in the newspapers for such material. They are simply instances that have come under my eye within the past few weeks in the course of the daily reading of the newspapers. We will take them as the basis of our argument as to whether women of this particular class or with this particular experience need protection. But it may be objected that these stories were all taken from the newspapers and were varnished for effect. The reply to this would be that we have here a class of cases in which hyperbole is impossible, and I am prepared to vouch for almost equally revolting experiences which have come within my own observation. [Dr. Currier then briefly narrated a number of examples in which he had been personally cognizant of the facts, and continued thus :]

These experiences, so revolting to the feelings and the imagination, are narrated not because they are singular or unique, for many who are present could parallel them in their own observations, but because of the enormity of the offenses, the futility of present means of punishment, and the earnest desire to find a remedy. We know that many of the victims of this inhuman treatment suffer in patience and in silence, not knowing where to look for protection and justice, and doubtless many of them die with their wrongs unredressed. Many others continue to keep alive the divine spark of love and consideration for those who should be their protectors and are unwilling to have them suffer punishment. Unfortunately, too, it often happens that political considerations prevent a magistrate from dealing as sternly with this class of offenders as the occasion may warrant; a ward heeler who has been severely punished by a judge is not apt to forget it when the next election takes place and the judge or his friends are running for office. But, assuming that the judge administers the law fearlessly and conscientiously, if a felony is not proved, the most that he can do is to reprimand the prisoner and inflict a fine or a short imprisonment upon the island. What does the average man who is scoundrel enough to beat a woman care for such penalties? The reprimand does not give him any pain; the fine is often paid by the wife, and in any case comes from the slender income of the family; the imprisonment means comfortable quarters, plenty of food, and healthful work. The imprisonment ended, the man goes back to his home and his old companionship; he is not reformed, and takes the first opportunity to "get even" with his wife for having had him arrested. To a nature thus depraved there is but one effective appeal in the way of punishment that I can conceive of, and that is something which will give him physical pain. A man who has once felt the sting of pain will understand the sensations which are experienced by a beaten woman. One who has had a severe dose of such medicine will not conduct himself, as a rule, in such a way as to invite a repetition of it. The objection to such a mode of treatment which meets us at the outset is that it is degrading and barbarous, a step backward, and a return to the measures and methods of a society less highly civilized than our own. We may be highly civilized, but the events of the past few months teach us that if we scrape away a very thin crust we find a social condition which is not very flattering to our pride, and that our civilization may have been developed along lines which it would be quite desirable to retrace.

I do not believe that corporal punishment can degrade to a lower depth one who is so deficient in manliness as to strike and pound one who is physically incapable of self-defense, who forgets the consideration which any decent man should always show to a woman, or who becomes the mortal enemy of his wife, his mother, or his sister, instead of her friend and protector. Certainly such punishment can not be more degrading than the so-called glove contests which are witnessed so approvingly in many of the fashionable clubs of this country.

The object of such punishment being deterrent and reformatory, it is unnecessary to say that it should not be done publicly; the only spectators should be the officer of the law who inflicts the punishment and a physician of known capacity and integrity, who should be a safeguard against any cruelty or undue severity. The infliction of such a penalty could not be a more repulsive duty to an officer of the law than to shackle and fetter a prisoner, or than any of the more violent measures which are at present exercised upon refractory criminals. It is doubtless unpleasant to most men to deprive a fellow-being of his liberty; it should be unpleasant to administer punishment in any form; but as long as men continue to do what the public conscience, which voices itself in the terms of the law, regards as wrong, there will continue to be penalties for such misconduct, and a part of the machinery of justice will consist in administering the penalties therefor. The degrading influence of such a duty will depend partly upon the disposition or temperament of the officer and partly upon the surroundings and scene of the punishment. A judge in a criminal court is not necessarily degraded though he pronounces the severest penalties upon his fellow-men year in and year out. A surgeon is not degraded though he inflicts the severest pain, day after day, upon those whom he seeks to relieve and help. It is equally possible that an agent of the law should inflict corporal punishment upon those who have been adjudged worthy of it without detriment to his moral nature; or, as an additional safeguard, the punishment may be inflicted with predetermined accuracy by means of a suitably constructed machine. The very notion that such a punishment is possible may be sufficient to deter many a brutal man from the risk of sustaining it, while others who have once tried it may hesitate before inviting it a second time.

If it is decided by the Legislature of the State that this form of punishment is proper and advisable, let it be surrounded, by all means, with every possible safeguard to prevent its abuse. Let us insist upon such magistrates to enforce the law as are wise and humane, just alike to the victims of cruelty and to those who have inflicted it. Let there be no suspicion of cruelty or torture in the punishment, but let it be so stern and severe that the criminal will not be willing to encounter it a second time. Let there be no spectacle for sensational accounts in the newspapers, and no spectators but the officer of the law and the physician, who shall be the guaranty to the public that no unnecessary harm shall come to the criminal.

I have endeavored to discuss calmly and dispassionately the question whether the proposition to inflict corporal punishment was a reasonable one at this time and at this stage in the world's history, whether if a law permitting such punishment were enacted it would redound to the benefit of society, or whether it would signify a return to a state in which human life and liberty and happiness would be less secure than they are at present. Certainly those who are the greatest sufferers in the present state of affairs could not be made worse by the proposed law than they are now, and the chances are decidedly in favor of an improvement in their condition by its deterrent action. The fact must never be lost to view that the law is not intended for innocent men, but for those who are universally admitted to be brutal and degraded. As long as codes of law are necessary for social and individual protection, penalties and pain can not be eliminated from them. Let us hear the testimony upon this subject of an eminent English jurist, Sir James Stephen. In his *History of the Criminal Law in England* (1883) he states (vol. ii, p. 91): "In my opinion the importance of the moral side of the punishment, the importance, that is, of the expression which it gives to a proper hostility to criminals, has of late years been much underestimated. The extreme severity of the old law has been succeeded by a sentiment which appears to me to be based upon the notion that the passions of hatred and vengeance are in themselves wrong, and that therefore revenge should be eliminated from law as simply bad. It is useless to argue upon questions of sentiment. All that any one can do is to avow the sentiment which he holds and denounce that which he dislikes. I have explained my own views. Those which commonly prevail upon the subject appear to me to be based upon a conception of human life which refuses to believe that there are in the world many bad men who are the natural enemies of inoffensive men, just as beasts of prey are the enemies of all men. My own experience is that there are in the world a considerable number of very wicked people, disposed when opportunity offers to get what they want by force or fraud with complete indifference to the interests of others and in ways which are inconsistent with the existence of civilized society. Such persons ought, I think, in extreme cases, to be destroyed." From this extreme view I most emphatically dissent, as I do not believe in the principle of capital punishment. It must be admitted, however, that the history of our prisons and reformatories has shown some examples of complete incorrigibility according to all existing methods of treatment.

Resuming the quotation from Stephen: "The view which I take of the subject would involve the increased use of physical pain, by flogging or otherwise, by way of a secondary punishment. It should, I think, be capable of being employed at the discretion of the judge in all cases in which the offense involves cruelty in the way of inflicting pain, or in which the offender's motive is lust. In each of these cases the infliction of pain is what Bentham calls *characteristic punishment.* The man who cruelly inflicts pain on another is made to feel what it is like. It seems absurd that if a man attempting to ravish a woman squeezes her throat to prevent her from crying out he should be liable to be flogged, but that he should not be liable to be flogged if he puts one hand over her mouth and with the other beats her about the head with a heavy stone."

Concerning the efficacy of corporal punishment in the State of Delaware, we are fortunate in having with us an eminent legal gentleman from that State who will tell us about it from practical observation of its workings. The use of this method of punishment at the Elmira Reformatory has recently been subjected to the most searching investigation and criticism. This investigation and the complete vindication of Mr. Brockway show us that it is possible to use such a method of punishment without abuse. In this connection I beg leave to read the following communication from Dr. W. C. Wey, president of the board of managers of the Elmira Reformatory:

"The question of dealing with misdemeanants of a certain class is perplexing, uncertain, and disappointing, in respect to the results which are looked for in connection with the operations of the law upon them. The periodical or the confirmed drunkard whose occasional outbursts of excitement and temper lead him to the commission of an offense against the law has as little dread of thirty or sixty days in the penitentiary as of missing a meal. In some cases it is understood that offenses are committed for the purpose of obtaining temporary asylum in a place of imprisonment. This is particularly noticeable when the confinement does not subject the individual to manual labor or employment of any kind. Subsistence in a jail upon as good food as that procured outside, if not better, with congenial companionship and indulgence in tobacco to an unlimited extent, and without thought of the future, is regarded by many of the men under consideration, not as a hardship, but as an actual privilege—as something to be sought and not avoided. The wife-beater, whose impulse to commit the act is commonly inspired by alcoholics, belongs to this list of lawless characters. He is apt to be a repeater, and pleads guilty to intoxication rather than to the more serious charge of assaulting his wife, because of a sentiment in the community which regards drunkenness as a minor offense, while the maltreatment of a woman is looked upon with chivalrous indignation.

"Taking this case as an illustration of the methods in operation under the law by which so-called punishment is meted out to an offender, the question is at once suggested if it does not fail of its purpose—first, to inflict suitable pains and penalties; next, to prove deterrent in its influence on others who may be like-minded as transgressors; and again, if it affords protection to such as are chiefly involved as sufferers in the aggressions which belong to our one-sided social state. That it fails of its purpose to impress offenders sufficiently to turn them from habits which are begotten of gross license and demoralization is apparent; that it is not preventive, in them or in others, of endless varieties of brutish acts is equally plain, and that society and individuals continue to bear the burdens which grow out of such displays of human passion, without adequate remedy, will not be gainsaid.

"In the treatment of such offenders I am convinced that corporal punishment will afford relief to outraged public sentiment, in connection with their acts, and to the forbearing victims of wife-beating, for instance, which a money penalty or a short period of imprisonment has failed to accomplish. Under judicious supervision and execution such a mode of punishment can be conducted in a way to be consistent with the dictates of humanity and insure the best results to men thus subjected to physical treatment.

"The following extract is made from the recent Flint-Deyo report of the investigation of charges against the management of the New York State Reformatory: 'During the five years immediately preceding September 30, 1893, when the use of corporal punishment in the reformatory was suspended, three hundred and seventy-three inmates were reported for fighting, an average of 37·3 for each period of six months during that time. During the six months immediately following the suspension of corporal punishment, a hundred and seventy-two inmates were reported for the same offense, or more than four and a half times as many of the average number reported for that offense during any corresponding period of six months within the five preceding years.'

"The minor world of the reformatory is but a reflex of the greater world outside, and it is reasonable to assume that fear of personal contact with the representatives of violated law will prove more deterrent to men fastened to the whipping-post and to others inclined to evil ways than the usual methods of punishment at the present time in force.

"A distinguished professor in one of the leading American colleges, a few months since, in the presence of his class, spoke so approvingly of the purpose and results of physical treatment in the reformatory that he was asked by a student if he would sanction such a practice with him or his fellows, in case of positive dereliction of duty, to which he replied, with earnestness, 'Yes, indeed, if your shortcomings were not followed by expulsion.'

"At any rate, the experiment should have full opportunity of being submitted to the public to determine its efficiency. It is short, sharp, and decisive in its operation. Its physical effect is evident, its moral power is unquestioned. In the State of Delaware it has had such a successful history and for so long a time as to be established in the confidence of the best citizens of that commonwealth."

Now if we are willing to admit that corporal punishment is ever justifiable for insubordination and for certain misdemeanors incidental to the discipline of a prison or reformatory, and if we accept the statements concerning the beneficial results which have attended its employment at the Elmira Reformatory—and it must be conceded that the testimony of those who have made a careful study of this phase of the subject in the foremost institutions of the world and have had nothing but praise for the work of the Elmira Reformatory is worthy of greater credence and regard than the opinions of those who argue merely upon the ground of sentiment—much more are we bound to admit that such punishment is justifiable for cruelty and felonious assault upon the persons of women. For myself, I believe that any man who strikes a woman, if it be but a single blow, should be soundly thrashed, and I can scarcely conceive of any one with the instincts of common humanity who would not feel impelled to do the thrashing, if he was able, if the cowardly blow was struck in his presence, but if the victim was a wife, sister, daughter, or aged mother of the guilty person, whom natural instincts would impel to defend and not maltreat, if, moreover, the victim was knocked down, dragged about by the hair, thrown down-stairs, kicked, maimed, or disfigured in any way, beaten with a club, or attacked with a knife or axe, all of which cowardly acts are repeatedly done in this community, my charity does not reach the limit of letting off such a brute with fine and imprisonment. A hard whipping inflicted upon such a person would do him good, and the whipping should be repeated with increasing severity if the offense was repeated.

I have already referred to the safeguards which should be thrown around such punishment, its object being serious, remedial, deterrent, and not revengeful, justice to the criminal and a means of protection and defense to his victim.

There is little fear that such an offender will receive serious injury from the punishment which has been advocated. One who is vigorous enough to beat a woman is usually sufficiently vigorous to endure the penalty of his crime.

With regard to the portion of the body upon which the punishment should be laid, while I have not considered the matter in all its bearings and may change my opinion, my present view is, from such thought as I have given the subject, that the method of spanking upon the bared buttocks, more or less similar to the method in use at Elmira, is least open to objection, is far preferable to the use of a whip, and is far less likely to be abused than any method with which I am acquainted. All other portions of the body can remain covered, none of the important organs can by any possibility be injured, while the smart and sting of a punishment upon the buttocks can be made sufficiently acute to furnish a profound impression. The disgrace of such a punishment to the offender is hardly worthy of serious consideration; he has already sounded the depths of degradation.

In conclusion, if the measures which have been advocated should commend themselves to the members of the profession in this city, I would recommend that a petition signed by those who are in sympathy with this movement be sent to the Medical Society of the State of New York at its meeting in February, urging the appointment of a committee to draft a suitable bill, and that the same be presented to the Legislature during the present session for enactment into law.

Mr. Elbridge T. Gerry delivered an address in which he said:

When those who are deeply interested in the welfare of little children can in addition enlist the powerful, active, pronounced aid of the medical profession in support of their efforts, the task of satisfying the Legislature at Albany of the propriety of changes in the law is comparatively an easy one. The medical profession have a weight and influence with the Legislature of which they are but little aware. The suggestions of the family physician are heeded when political arguments are of no avail; and, however the learned members of your profession may disagree, one thing is very certain, and that is that when they do agree their conclusions have a weight with the community not easily overthrown or laid aside. I have more than once experienced this in the efforts made by the society which I represent to protect helpless childhood. Its arguments are never so strong as when enforced by clear, lucid statements of the effects of injuries, from the lips of medical men, whose familiarity with pain and suffering enables them to plead the cause of helpless childhood more effectively than any mere words of eloquence or any form of abstract propositions. It rests with you tonight to determine whether what I shall propose merits your approval. If it does, you will accomplish a radical change in the punishment of criminals which will be calculated to produce results in the shape of deterrent effects beyond what you can even remotely suspect. Now let me turn to my subject.

The infliction of corporal punishment for breach of the law is one of the oldest methods known to antiquity, and has the direct sanction of the Mosaic law. Thus, in eastern countries the application of the bastinado still survives as a continuance of the imposition of the "forty stripes save one" which Moses enjoined, even for minor offenses. It is intensified in Russia by the application of the knout until its effects become lethal in their result. It possesses the advantage that it does not require skill or talent in its infliction. When it is inflicted under the advice and in the presence of a medical man, dangerous consequences can not be expected. It is, therefore, neither a cruel nor an unusual punishment, which is the subject of Constitutional prohibition. (Foote *vs.* The State, 59 Maryland R., 294.) Then the sole question which remains for the Legislature to determine is as to the propriety of its infliction in the cases to which I shall invite your attention.

There are a certain class of felonies punishable at the present time by imprisonment in the State prison, which consist in or are accompanied by the infliction of physical pain and suffering by the perpetrator upon the victim. Familiar illustrations of the first are cases of highway robbery, where an unoffending citizen is felled by a blow from the butt of a pistol or a loaded club, resulting possibly in a fracture of the skull or a broken limb, or certainly in severe contusions. Another illustration is that where in a quarrel a deadly weapon is used, constituting a felonious assault, or, as it is termed in the *Penal Code*, an assault in the second degree, which may possibly enlarge the offense to murder, and where the nature of the offense is to inflict grievous bodily harm upon the victim. Yet another illustration is that of ordinary rape, where a female is deprived of her chastity after the utmost reluctance and resistance, and irreparable injury is inflicted upon her character as well as her person, never wholly to be effaced during the rest of her earthly life. And, last but not least, is the commission of similar acts, including those against the course of Nature, upon the persons of very young children, where the victims are absolutely powerless and at the mercy of their brute assailants, where physical lacerations of the most frightful character are the result, and where in some States other than our own lynch law is unhesitatingly resorted to as the only proper punishment for the offender. The great object of the criminal law is not simply to punish the offender for the crime, but, as the old law books have it, to deter other evilly minded persons similarly disposed from in like manner offending. It is to this end that, according to the magnitude of the crime, the sentence is made correspondingly more or less severe. Where life is taken by the offender willfully and deliberately, unless justified or excused, the act involves the loss of his own life. In all other cases the punishment consists in the infliction either of a fine or of imprisonment, the length of the term depending upon the magnitude of the offense. In prison the offender leads a routine life. He performs a certain amount of exacted work; he is fed on simple but not unwholesome food; his physical condition is carefully looked after by competent medical men; his clothing is supplied at the expense of the State, which practically shelters him during the entire term of his imprisonment, exacting only in return the earning by his work of an amount to partially repay the outlay. Apart from the confinement and the sense of degradation, if any exists, and the deprivation of civil rights, there is no further punishment. On the contrary, the convict may himself shorten the term of imprisonment by good behavior; so that in reality a sentence of twenty years for almost tearing a little child asunder in a case of rape, is practically reduced to twelve, and without further inconvenience to the prisoner than the restrictions mentioned. The result is exactly what might be expected. The class of men who commit these crimes are usually but a slight remove from the brute—I had almost said they were below the level of the brute, for such offenses are unknown in the brute creation. To these disgraces to humanity the State prison presents no terrors. Corporal punishment is occasionally inflicted upon them while there for breach of discipline, and that keeps them in subjection. But as to the imprisonment itself being either adequate to the crime or operating as a deterrent, the recent criminal statistics show that it is nothing of the sort.

It is extraordinary in one sense, and yet in another it can readily be understood that the majority of the crimes to which I have referred are committed by foreigners and not by American-born citizens. The bad education, or rather the lack of education, the atmosphere of foreign cities which are often but nurseries of vice, the low standard of morality, and the utter ignoring of religion, excepting, perhaps, in the form of superstition, will readily account for this. Something must be done to check the growth of crimes of this character. How shall it be done? is the problem to be solved.

Now, there are two cases of practical experience which do away with the idea that the suggestion of corporal punishment is a mere theory. One is that in England, where garroting, which was highway robbery accompanied frequently with absolute strangulation of the victim, was checked only by the sentence of corporal punishment; and the other was where repeated attacks upon the life of the sovereign and her family were also punished in like manner. Garroting was absolutely stamped out by the infliction of corporal punishment.

(Wharton and Stillé's *Medical Jurisprudence*, vol. i, § 539, p. 438, note 1, quotes the following "from an English newspaper of 1872": "It is a noteworthy fact that since garroters have been sentenced to floggings the offense has almost disappeared from the criminal records of England." To the same effect Sir Edward Thornton's article in the *North American Review*, January, 1882, p. 7.)

So, also, the assaults upon the royal family of late years have become so rare that it is almost safe to assign the cause of their cessation. For when you look at the matter squarely there is nothing that these brutes dread so much as the infliction of physical punishment; however ready they may be to cause it to others, they shudder and tremble when they are obliged themselves to bear it. And in the bill which will be read to you to-night, and which has been prepared at the instance of the Convention of Societies for the Prevention of Cruelty to Children throughout the State, you will see how simple it is to provide for the imposing of the penalty and for the insuring of its infliction.

Corporal punishment has already been the subject of specific legislation in several of our States. Thus, in Delaware (*Revised Code of Delaware*, 1893, pp. 924, 925, 933–937, 945) most of the serious offenses against the person are punishable by whipping, the maximum number of lashes being sixty.

In Maryland (1 *Public General Laws of Maryland*, 463) an assault upon a wife is punishable by a maximum infliction of forty lashes (Foot *vs.* State, 59 Md. R., 264).

In Indiana (3 *Burns's Indiana Statutes*, 1894, p. 707) the time and place for the infliction are specified in § 8227.

In Connecticut (*General Statutes of Connecticut*, 1888, p. 736, § 3341) disobedient convicts may be moderately whipped, not exceeding ten stripes for any one offense.

In Georgia (1 *Laws of Georgia*, 1890–'91, No. 398) whipping is inflicted when reasonably necessary to enforce discipline or compel work or labor by convicts.

And in Foot *vs.* State, already cited (4 *Criminal Law Magazine*, 401; s. c., 59 Md., 264), where a wife-beater was sentenced to be whipped under the laws of that State, the Court of Appeals there held that whipping was not a cruel and unusual punishment within the constitutional prohibition.

The subject of corporal punishment was considered by the American Bar Association in a report presented by its committee on jurisprudence and law reform, at its session in 1886 (*Reports of the Am. Bar Assoc.*, vol. ix, p. 286). This report gives some very interesting statistics and recommends the general use of the whipping-post (p. 293). It was the subject of discussion at the annual meeting of the year following, 1887 (*Reports of the Am. Bar Assoc.*, vol. x, p. 55), and was supported by those eminent jurists, Simon Sterne, of New York; C. Stuart Patterson, of Pennsylvania; Robert D. Benedict; Skipwith Wilmer, of Maryland; E. O. Hinkley, of Maryland; John H. Handy, of Maryland; and Ignatius C. Grubb; and was opposed by Egbert Whittaker, of New York; Julius B. Curtis, of Connecticut; and P. L. Mynatt, of Georgia. After consideration of the subject, it was laid upon the table. The arguments presented *pro* and *con* were substantially those I have already considered, with a balance in favor of corporal punishment.

An article in the *London Law Times* on Flogging as a Punishment, quoted in the *Pittsburgh Legal Journal* (vol. xxx, p. 126, November 14, 1883), after reciting the provisions of the English statute, 26 and 27 Vict., c. 44, continues: "The number of persons who have suffered corporal punishment under these provisions is certainly less than might be expected. In more than eighteen years only three hundred and two adult offenders have been flogged even once, and in four cases alone has the punishment been repeated. No case is to be found in the records of the Home Office where it has been administered a third time. It will of course be said that the rarity of the punishment is caused by the rarity of the offense, and that the act promptly extirpated the offense aimed at. Assuming this, the return would give considerable support to those who regard corporal punishment as the panacea for all crimes of violence."

Let me now present the objections to the act. In 1881 an effort was made by the late Henry Bergh to provide for corporal punishment in the case of wife-beaters. The matter was introduced by the late James W. Husted in the Assembly Judiciary Committee, where it remained. The prejudice against the bill as it then showed itself was upon the ground that there might be cases where the infliction of the punishment would have the effect of creating subsequent very bitter feeling between husband and wife and absolutely prevent that reconciliation which the policy of the law regarded as most desirable, not simply for the continuance of the marital relation and the prevention of infidelity, but also with the view of insuring to the children the benefits resulting from harmony between their parents. The question was not as to the gravity of the offense, but it was urged in favor of the measure that such punishment would be efficacious when other means failed. The Legislature, however, hesitated upon the specific ground mentioned, and the result was that the bill was never pressed to a vote. The press were divided on the subject, a very large number maintaining that Mr. Bergh's remedy was a most just and proper one, and others, while conceding that it might be proper in the case of grave offenses, thought it would tend rather to encourage brutality by the creation of vindictive feelings on the part of the offender on whom it was inflicted. It is for this reason that in the present bill the limitation, as you will observe, is to cases of felony. Should it succeed in obtaining, as it is believed it will, the sanction of the Legislature, and should it prove efficacious in these cases, it will be very easy to extend it to minor offenses; but, if the reverse course is tried, it is much to be feared that the former prejudices which operated in 1881 will be revived to the detriment of the whole measure.

Now, another objection to the bill is that it is the relic of a by-gone age, in view of the fact that it originated with Moses; and that our advanced civilization requires that more humane methods should be resorted to for the prevention and punishment of crime. The answer to this is a perfectly simple one. The method which is the most efficacious and the simplest is always the most desirable in cases of this sort, because the object of the law is not simply to punish crime, but to deter persons from committing crime. It is a question of political economy, because after the crime is committed, in case of imprisonment, the State is bound to support the offender, whereas, if the crime is prevented, the State is relieved from the necessity and expense of so doing. From a practical point of view, therefore, whatever tends to diminish crime tends to diminish the expenses of the State; and it is this view which will be urged before the Legislature as a strong argument for the adoption of this measure.

The last objection is that corporal punishment is brutalizing, that it tends to degrade the individual upon whom it is inflicted and to destroy his self-respect. The answer to this is equally simple. Those who suggest such an idea should be called upon to define what possible self-respect can exist, even in the remotest degree, in him who commits an atrocious crime of rape or sodomy upon a helpless little child. Surely if the dread of physical punishment legally inflicted, with proper precautions against dangerous results, will operate in the slightest degree to prevent the continual spread and increase of these frightful crimes against infancy, there should not be the slightest hesitation on the part of any humane man in not only indorsing but advocating such a measure, in the interest of our common humanity, and for the protection of his own little ones, who, in an unguarded moment when absent from his personal care and protection, may be the next victims of brutal lust, because with such wretches as those who perpetrate these crimes only one thing is needed besides the victim, and that is the opportunity.

It is, then, to the medical profession, in the presence of whose representatives under the provisions of this law the punishment is to be inflicted, if the Legislature shall so decree, that the Society for the Prevention of Cruelty to Children now addresses this appeal, in the earnest hope that they will give it that hearty support and co-operation which are most certain to insure its final passage in the Legislature, and thus illustrate what has long been an axiom of their profession, that an ounce of prevention is worth a pound of cure.

The Discovery of Anæsthesia.—Dr. William J. Morton, the son of Dr. William T. G. Morton, has furnished us with certain memoranda relating to the discovery of anæsthesia. The most interesting of these documents seems to us to be the following letter, a portion of which was recently published in the *Century Magazine:*

"Boston, *April 2, 1893.*

"My Dear Sir: Few persons have or had better reason than myself to assert the claim of Dr. Morton to the introduction of artificial anæsthesia into surgical practice. The discovery was formally introduced to the scientific world in a paper read before the American Academy of Arts and Sciences by Dr. Henry J. Bigelow, one of the first, if not the first, of American surgeons.

"On the evening before the reading of the paper containing the announcement of the discovery, Dr. Bigelow called at my office to recite this paper to me. He prefaced it with a few words which could never be forgotten.

"He told me that a great discovery had been made, and its genuineness demonstrated at the Massachusetts General Hospital, of which he was one of the surgeons. This was the production of insensibility to pain during surgical operations by the inhalation of a certain vapor (the same afterward shown to be that of sulphuric ether). 'In a very short time,' he said, 'this discovery will be all over Europe.' He had taken a great interest in the alleged discovery, had been present at the first capital operation performed under its influence, and was from the first the adviser and supporter of Dr. W. T. G. Morton, who had induced the surgeons of the hospital to make trial of the means by which he proposed to work this new miracle. The discovery went all over the world like a conflagration.

"The only question was whether Morton got advice from Dr. Charles T. Jackson, the chemist, which entitled that gentleman to a share, greater or less, in the merit of the discovery.

"Later it was questioned whether he did not owe his first hint to Dr. Horace Wells, of Hartford, which need not be disputed. Both these gentlemen deserve 'honorable mention' in connection with the discovery, but I have never a moment hesitated in awarding the essential credit of the great achievement to Dr. Morton.

"This priceless gift to humanity went forth from the operating theater of the Massachusetts General Hospital, and the man to whom the world owes it is Dr. William Thomas Green Morton.

"Experiments have been made with other substances besides sulphuric ether for the production of anæsthesia. Among them, by far the most important is chloroform, the use of which was introduced by Sir James Y. Simpson. For this and for the employment of anæsthetics in midwifery he should have all due credit, but his attempt to appropriate the glory of making the great and immortal discovery, as revealed in his contribution to the *eighth* edition of the *Encyclopædia Britannica*, is unworthy of a man of his highly respectable position. In the *ninth* edition of the same work his article Chloroform is omitted and a fair enough account of the discovery is given under the title Anæsthesia. Yours very truly,

"O. W. Holmes."

The Medical Society of the State of New York will hold its eighty-ninth annual meeting in Albany, on February 5th, 6th, and 7th, under the presidency of Dr. George Henry Fox, of New York. The programme includes the following papers: Clinical Notes on Psoriasis, with Special Reference to its Prognosis and Treatment, by Dr. L. Duncan Bulkley, of New York; Shall Insane Criminals be Imprisoned or Put to Death? by Dr. J. B. Rawson, of Dannemora; The Brain of a Suicide with Two Pistol-shot Wounds, by Dr. Burt G. Wilder, of Ithaca; The Surgical Treatment of Empyema of the Antrum of Highmore, by Dr. Samuel Lloyd, of New York; The Use and Abuse of the Animal Extracts, by Dr. Henry W. Post, of Fultonville; A Few Experiences with Diphtheria Antitoxine, by Dr. Nelson G. Richmond, of Fredonia; The Treatment of Puerperal-fever Septicæmia by the Country Practitioner, by Dr. John Mann, of Jericho; Ringed Eruptions: a Study in Differential Diagnosis, Illustrated by Lantern Slides, by Dr. George Thomas Jackson, of New York; Remarks on Leprosy, with an Exhibition of Lantern Slides, by Dr. P. A. Morrow, of New York; Blood Examinations regarding the Malarial Origin of Zoster, by Dr. James McFarland Winefield, of Brooklyn; The Effects of an Occupation upon the Vision, by Dr. Lucien Howe, of Buffalo; Double Pyosalpinx Evacuating through the Uterus; Curettage followed by Pregnancy and Delivery of a Living Child at Term, by Dr. Edward N. Liell, of New York; The Gauge of the Normal Urethra in Relation to the Permanent Cure of Urethral Stricture, by Dr. Charles Storer, of Amsterdam; The Curability of Cancer when the Lymph Nodes are Involved, by Dr. B. Farquhar Curtis, of New York; The Surgical Indications in Neuralgia, by Dr. J. G. Clark, of Olean; A New Operation for the Radical Cure of Femoral Hernia, by Dr. George M. Edebohls, of New York; Thirty-nine Cases of Strangulated Hernia, and the Lessons Taught by them, by Dr. W. B. de Garmo, of New York; The Dry Treatment of Otitis Media Suppurativa, by Dr. J. E. H. Nichols, of New York; Infantile Scorbutus, by Dr. W. P. Northrup, of New York; The Use of Chlorine in Typhoid Fever, by Dr. Reynold W. Wilcox, of New York; The Prevention of Hernia after Laparotomy, with the Exhibition of a Device for Relieving the Strain on the Abdomen, by Dr. Henry T. Durand, of Rochester; The Structure of Cancer and other Pathological Conditions, Illustrated with a Lantern-slide Exhibition of Photomicrography, by Dr. John A. Fordyce, of New York; Some Remarks upon the New Treatment of Diphtheria, by Dr. Hermann M. Biggs, of New York; A Few Practical Points in the Diagnosis and Treatment of Pelvic Hæmatocele, with the Report of a Case, by Dr. W. E. Colgrove, of Horseheads; Notes of Two Interesting Cases Illustrating the Treatment of Eczema Capitis with Salicylate of Sodium and Agalactia with *Galega officinalis* and *Galega apollinea*, by Dr. C. E. Lockwood, of New York; A New Operation for Closing the Wound after Cœliotomy, by Dr. Ralph Waldo, of New York; A Clinical Report showing the Tolerance of the Peritonæum and Nature's Kindness to the Surgeon, by Dr. Henry L. Elsner, of Syracuse; A Report of Three Cases of Extra-uterine Pregnancy, by Dr. Arthur B. Breese, of Syracuse; Some Suggestions regarding Medical Examinations and Inquests in Case of Death, by Dr. T. L. Dawes, of Saugerties; Extraordinary Intubations, by Dr. William Hailes, Jr., of Albany; The Differential Diagnosis of Renal and Cardiac Diseases, by Dr. Leroy Lewis, of Auburn; The Treatment of the Blennorrhœa of the New-born, by Dr. W. F. Mittendorf, of New York; The Treatment of the Ear during the Course of the Exanthemata, by Dr. Wendell C. Philips, of New York; The Treatment of the Nose and Throat during the Course of the Exanthemata, by Dr. C. C. Rice, of New York; The Symptomatology of Cerebellar Disease, by Dr. William C. Krauss, of Buffalo.

The following papers on electricity in medicine from a modern standpoint will be discussed: Electro-physics, by Professor Edward J. Houston and Mr. A. E. Kennelly, of Philadelphia; Electro-physiology and Electro-therapeutics, by Dr. William J. Morton, of New York; Electricity in Gynæcology, by Dr. Augustin H. Goelet, of New York.

Color-blindness among the Orientals.—Among the publications of the German Asiatic Society, of Tokyo, Japan, for 1894 is a paper by Dr. F. B. Stephenson, of the United States Navy, entitled Color-blindness in Asiatics, giving the result of observations among the natives of Hawaii, Unalaska (Aleutian Islands), Japan, China, Annam, and Siam, and the mixed nationalities from Borneo and India who inhabit Singapore and other portions of the Malaccan peninsula. All of these peoples showed evidence of defective color sense.

Observations on the Medical Department of the British Army by an Officer of the United States Medical Service.—We lately reprinted an article on Colonel Woodhull's report from the *British Medical Journal.* We now reproduce the following from the *Lancet* for January 12th:

"We recently very briefly adverted to Brevet Lieutenant-Colonel Woodhull's Observations on the British Medical Service, abridged from an official report and published by authority of the Secretary of War of the United States. These observations are reprinted from the fourth volume of the *Transactions of the Association of Military Surgeons of the United States.* The writer of this abridged report is a distinguished officer of the American medical service, and he is certainly to be congratulated on the ability and accuracy with which he has discharged the duty committed to him. While in England, in 1891, he was ordered by the War Department of the United States to make the utmost use of such facilities as might be granted to study the British military hospitals, the army medical school, the duties of medical officers, the sanitary administration of barracks and camps, the instruction service of the Medical Staff Corps, and the system of physical training in the British army. It will be seen that the scope of his inquiries was sufficiently comprehensive, and he has evidently been indefatigable in his efforts to obtain a good firm grasp of his subject. The results are embodied in the abridged report before us. It is surprising what an amount of well-arranged information Colonel Woodhull has managed to incorporate in a condensed form in this report, which should, and probably will, be extensively read by medical officers of the British service. Sydney Smith humorously traced how taxation shadowed every step and stage in the career of a British subject, and Colonel Woodhull has, it may be said, in a similar manner traced the British soldier from the cradle to the grave; he has described and analyzed our army medical regulations, our service customs and practices, as contrasted with those of his own service, and in a running commentary frankly reviewed our methods in an honest, independent spirit, but always in excellent taste.

"From what we have said it will be seen that it is impossible, nor indeed is it necessary, to accompany Colonel Woodhull through all his inquiries and comments; we can only attempt to select a few points. Passing over his general remarks on the strength and organization of the British medical department, the entrance examination and the course at Netley, and the system of promotion in the various grades and the duties assigned to each of them, he points out, *en passant*, some minor practical differences between the medical service of this country and that of the United States, and adverts to the subject of the roll of married soldiers in the British army, which, judged by any ordinary measure of a combatant force, is, he says, enormous and draws deeply on the medical as well as on the other sources of the establishment. Much consideration is given to the subject of diets in British and American army hospitals and the different systems on which these are based respectively. The dictary of the United States hospitals is, it may be mentioned, very liberal and varied, and it is so different from that of our army that no useful comparison can well be made. Speaking of medical history sheets—which we regard as excellent and most useful documents in our service, with its soldiers serving in all parts of the world—Colonel Woodhull does not, on the whole, and for the reasons he gives, think that their adoption in the American service would be attended with any great advantage. As regards the nursing sisters of our service, he says that he formed a very favorable impression of this trained section of the nursing staff. Alluding to the functions and authority of the director general, he remarks that these greatly transcend those of the surgeon general of the United States army, and he goes on to make some judicious remarks on promotion by selection and seniority. 'By restraining promotion in the lower and medium grades to seniority, moderate ambition and moderate abilities are satisfied; and opening the higher ranks to choice presents a stimulus for exertion, and relieves the administrative positions from the inertia and indifference that sometimes accompany age.' Colonel Woodhull has a good deal to say about recruiting, and particularly about the Medical Staff Corps. Like anybody else who has any practical knowledge of the subject, he is opposed to the limitations of stature now in force for the men of this corps, unfitting them as they do for the work they will have to perform in war. His comments on the Aldershot system of training of the Medical Staff Corps are very favorable, although he considers that in several particulars the methods pursued in the United States service are simpler and better adapted to the general end in view, and therefore to be preferred. In connection with this subject we may say that Colonel Woodhull expresses his surprise that the Army Medical Service and Medical Staff Corps are not more practically utilized at our autumn manœuvres than they are.

"Colonel Woodhull also considers that his army service has nothing to acquire from Great Britain in the system of tentage, whether considered for shelter, artificial warmth, convenience of transport, or adaptability to campaigning purposes.

"Speaking of our barrack rooms, he thinks that the men can hardly be warm enough for comfort, and this is a matter in which they would certainly agree with him, for the insufficient allowance of fuel and the draughty nature of these rooms in cold weather are common complaints with soldiers.

"Referring to the subject of medical and sanitary instructions for field service, we are glad to notice that he gives some extracts from those issued in this country for the Suakin Expedition, which he very highly commends for their scope, intrinsic value, and general usefulness, expressing at the same time his regret that he failed to note the name of the officer who prepared these valuable memoranda. We may here incidentally remark that the *Lancet* drew special attention to the excellence of these instructions at the time they were issued. Colonel Woodhull devotes much consideration to Netley and to the value of such an institution to the State and the army. Although the courses at Netley and Aldershot overlap in some respects, he holds that, taken as a whole, 'they are both admirable, and are strongly commended for our imitation.'

"With reference to the various forms of transport for wounded he saw nothing as regards comfort and economy of force and the requirements of the American army to approach the travois and the Baily litter.

"Colonel Woodhull's remarks on gymnasia and the physical training of the British soldier strike us as pertinent and good. The physical development of the soldier, in whom the fighting instinct is naturally strong, gives to the British army, he says, much of the formidableness it possesses, notwithstanding certain deficiencies in the original material and other incidental conditions of the service.

"But here we must stop, contenting ourselves with hoping that we have said enough to show that the report under review is both interesting and instructive, and consequently well worth reading."

Sanitary Climatology.—This is the title of a circular recently issued by the Weather Bureau of the Department of Agriculture. The circular reads substantially as follows:

The interest manifested by every class of people in the subject of climate and its influence on health and disease has determined the Honorable the Secretary of Agriculture, through the medium of the Weather Bureau, to undertake the systematic investigation of the subject. It is hoped to make the proposed investigation of interest and value to all, but especially to the medical and sanitary professions and to the large number of persons who seek, by visiting health resorts and seeking a change of climate, either to restore health or prolong lives incurably affected or to ward off threatened disease. The study of the climates of the country in connection with the indigenous diseases should be of material service to every community, in showing to what degree local climatic peculiarities may favor or combat the development of the different diseases and by suggesting in many instances supplementary sanitary precautions, also by indicating to what parts of the country invalids and health-seekers may be sent to find climatic surroundings best adapted to the alleviation or cure of their particular cases. The hearty co-operation of the various boards of health, of public sanitary authorities, of sanitary associations and societies, and of physicians who may feel an interest in the work is asked to achieve and perfect the aims of this investigation. No compensation can be offered for this co-operation other than to send, free of cost, the publications of the bureau bearing upon climatology and its relation to health and disease to all those who assist in the work. Co-operation will consist in sending to the office reports of vital statistics from the various localities. That these reports may be of value, it is evident that they should be accurate and complete and be rendered promptly and regularly. Blank forms of reports have been prepared so as to occasion as little trouble and labor as possible on the part of the reporter, and will be furnished by the bureau on application. At the very beginning of the investigation it is not possible to outline precisely the channels through which the results obtained will be made public, but it is hoped to publish soon a periodical devoted to climatology and its relations to health and disease. The publication will probably resemble in size and general appearance the present *Monthly Weather Review*, the subject matter being, of course, different. More detailed information will be furnished on application to Mark W. Harrington, chief of the bureau, Washington, D. C.

A Triumph of Orificial Surgery.—An orificial surgeon reports in a recent number of a medical journal a case of "phthisis" cured by the operation for laceration of the cervix. The patient had a severe and long-continued cough and hectic fever, and what the surgeon calls an "interstitial inflammation of the lungs," with infiltration and obstruction of the air cells. "On the day of the operation the temperature reached 97·6°, and never rose above 99° afterward." Some light is thrown upon the nature of the case by the surgeon's stating that it was a case of phthisis of neurotic origin, and that such cases are often successfully treated by "removing the distal point of pathology." Other successful results of "orificial surgery" are a case in which chronic eczema of the hands was cured by stretching the rectum, and another case of the same disease cured by loosening the "hood" of the clitoris and "clipping of irritated points at the various outlets of the body." Of course, all the resources of therapeutic art had been exhausted upon these cases before they came under the care of the "orificial surgeon." A more transparent form of quackery than some of this orificial surgery can hardly be imagined. The author of the article referred to above states that in his observation "many cases of insanity are made worse by the operative procedure, but the secondary effect is most satisfactory." In his opinion, "a conservative orificial surgeon should be connected with each of our State hospitals for the insane." This last idea seems an excellent one, if he be connected in the proper capacity—that is, as a patient rather than as a surgeon.—*Boston Medical and Surgical Journal.*

THE NEW YORK MEDICAL JOURNAL, FEBRUARY 2, 1895.

Original Communications

NON-TUBERCULOUS DISEASES OF JOINTS.*

By ARTHUR J. GILLETTE, M. D.,
ST. PAUL, MINN.

SUCH a large proportion of diseased joints are tuberculous, and so many authors give such a large percentage as being tuberculous, that I wonder if we are not often inclined to give a diagnosis of tuberculosis "to be on the safe side." Our inability to follow up our cases, and lack of opportunity to prove our diagnosis by post-mortem or microscopy, no doubt has tended to lead us into this error.

But there are a number of diseases manifested in or about the joint so often resembling tuberculosis that it is quite difficult to distinguish them, yet the pathology and treatment differ so widely that to treat them scientifically they must be differentiated. To enumerate a few of them —rheumatic arthritis, gonorrhœal arthritis, septic joints, Charcot's disease of the joints, typhoid joints, rhachitic joints, epiphysitis, neuromimetic or hysterical joints, hæmophilic, loose bodies in joints, bursitis, synovial hernia, traumatic joints, incised wounds of joints, simple synovitis with effusion, dry synovitis, suppurative synovitis, gouty joints, tumors of joints, syphilitic joints, scorbutic joints, etc. This list suggested to me the idea of this paper.

It would seem impossible to confuse them from a pathological standpoint; it is, however, the clinical aspect of the case which I wish to present.

Rheumatic arthritis † is a disease of the joints characterized by chronic inflammatory and degenerative changes involving the structure of the various articulations and resulting in rigidity and deformity. Of course, our assistance in distinguishing this is in the history and multiplicity of joints involved; but who knows better than the general practitioner how little dependence can be placed on the histories given, and we sometimes find more than one joint involved in tuberculosis, though, happily for the patient, this does not often occur. A woman in middle life was treated in the City and County Hospital for articular rheumatism. She had the best of care. All the joints, save the right knee, were, so far as I could judge, entirely cured, yet some months later she returned to the hospital with a partial luxation of the knee, atrophy of the thigh and calf, enlargement of the knee, and the normal contour of the joint lost. How could I have distinguished this from a tuberculous joint had I not personally known the history, remembering that in most cases of tuberculous joints if the patients have not been treated for rheumatism, they believe this their trouble and give you a history accordingly?

During the past year a man was referred to me. Tuberculous disease of the knee was suspected, and with good reasons: there was atrophy of calf and thigh and the chronic condition of inflammation about the knee. I was about to concur in the opinion of his physician when, by the merest chance, I asked him if he had ever had gonorrhœa. He stated that he then had a discharge from the urethra. After the limb had been immobilized and the urethritis relieved the joint resumed its normal functions and appearance. While preparing this article I was consulted in a case with the following history:

A young woman of the middle class, about sixteen years of age, some three months previous to my seeing her began to have a limp and some pain in the knee. As her general health seemed much below par her physician advised her to go to the country. While there, the pain in the knee increased to such an extent that she was obliged to keep her bed. Blisters, hot fomentations, and liniments were applied, but the pain increased, and she was finally brought back to the city and a physician again consulted. He treated her for a few days, trying to control the pain with morphine. When I visited her it was impossible to move the bed or bedclothes without causing excruciating pain. I naturally examined the knee, from which most of the skin had been removed by the various counter-irritants. Satisfying myself that there was no disease there, I examined the hip joint, and elicited all of the symptoms of tuberculous hip-joint disease, both as to history and appearance. We applied a weight and pulley and left the patient quite comfortable. My diagnosis was tuberculous hip-joint disease, and I am sure I never felt more confident of a diagnosis in my life. A few days later the family physician was taken into the confidence of a certain young drug clerk, who felt we had been groping our way long enough, and that we ought to know that he too was treating the patient and for gonorrhœa, his treatment beginning before the hip trouble developed. From subsequent events and the above-mentioned fact, I believe that the hip trouble was undoubtedly gonorrhœal.

Septic joints come under the same head. They may come from long continued suppuration in any portion of the body; they resemble, and in fact can not easily be distinguished from, tuberculous joints, for it is well known that tuberculous joints often follow closely in the wake of exhausting diseases. Any septic micro-organisms which have gained entrance into the body might readily and often do implant themselves in a joint, occurring without any history of local injury.

It has been long known that Charcot's disease of the joints is sometimes with difficulty distinguished from other joint disease; in fact, can only be distinguished by establishing a positive diagnosis of tabes dorsualis. This certainly is very difficult, especially in the early stage, and by the lack of spasm of the muscles about the joint, which spasm is often lacking in the very early stage of tuberculous disease of the joint. In one of the leading hospitals of the east one of these joints was excised under the supposition that it was tuberculous.

Of late a great deal has been written upon typhoid joint diseases and typhoid spine, a condition following typhoid fever, characterized by acute pains upon the slightest movement and the absence of any marked febrile disturbance, which have been known to go on to suppuration and death, and the only bacilli found was the supposed bacillus of typhoid fever. As before stated, tuberculosis of joints may follow these diseases, yet how can they be distinguished?

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* Read before the Minnesota Academy of Medicine, December 5, 1894.

† Gould's *Dictionary*.

Rhachitic joints, as a rule, are not hard to differentiate, as we usually have the general rhachitic condition to guide us. You may have the two associated or you may have, as I once saw, only one bone in the body showing rhachitic changes. Take, for instance, a rhachitic posterior curvature of the spine: you will observe quite an acute posterior angular curvature of the spine, irritability, and sleeplessness of the patient. If seen early, about the only distinguishing point in any way positive in the rhachitic spine is that, instead of being rigid as in caries, it is very supple. I have pictures of a patient with a rhachitic posterior curvature of the spine which I was able to diagnosticate because of the general rhachitic condition and the ease with which the spine could be flexed. To-day the kyphosis remains as you see it in Fig. 1, but the general rhachitic conditions have all disappeared. Had I seen the case for the first time in its present condition, I am sure I could not have distinguished it from caries of the spine; in fact, it was lately so diagnosticated by a physician seeing it for the first time.

Epiphysitis, acute or suppurative, but non-tuberculous, if seen before the joint becomes involved, is easily recognized; this, however, occurs within a few days, and occurring in childhood has often been taken for tuberculosis of the joints.

I never realized that neuromimetic or hysterical joints were so difficult to distinguish from really diseased joints until I fell into this error in the case of a school teacher sent to me by a physician who diagnosticated knee-joint disease. I found atrophy of the calf and thigh, slight enlargement of the knee joint, pain on motion, night pain, interference with the normal movement, and a tuberculous family history. The patient had just left a hospital in Philadelphia where she had been treated for the same disease. After receiving my opinion she left the office to make arrangements to enter one of the hospitals. On her way she met with a Christian Scientist, who proved to her that she had no disease of the knee joints, and I guess this was correct, for from her own account she has since been free from pain, etc.

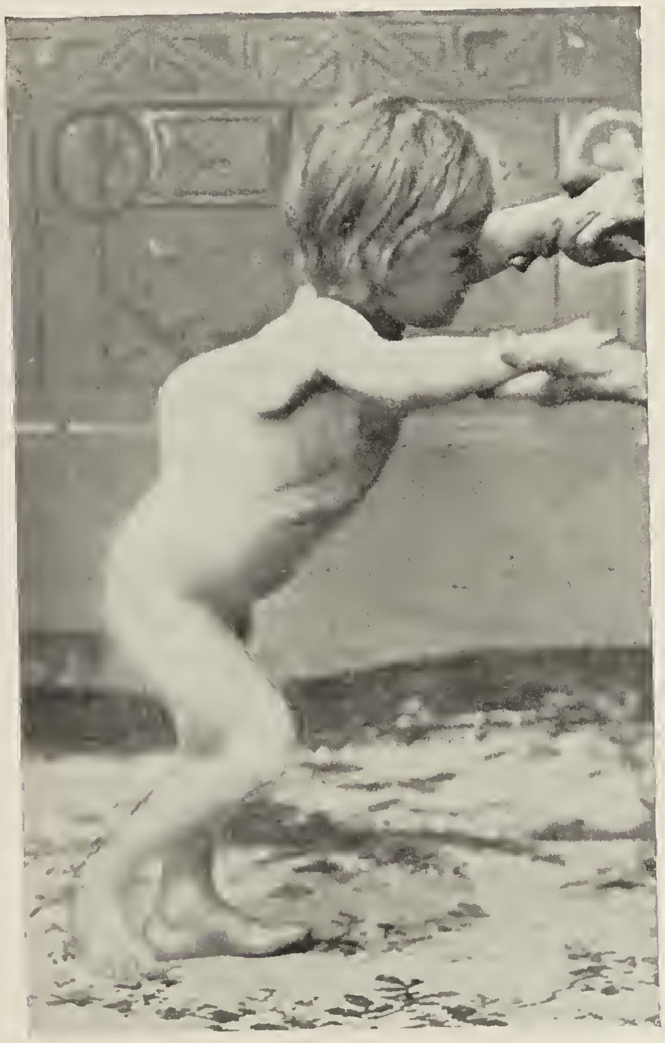

Fig. 1.—Posterior rhachitic curvature simulating Pott's disease.

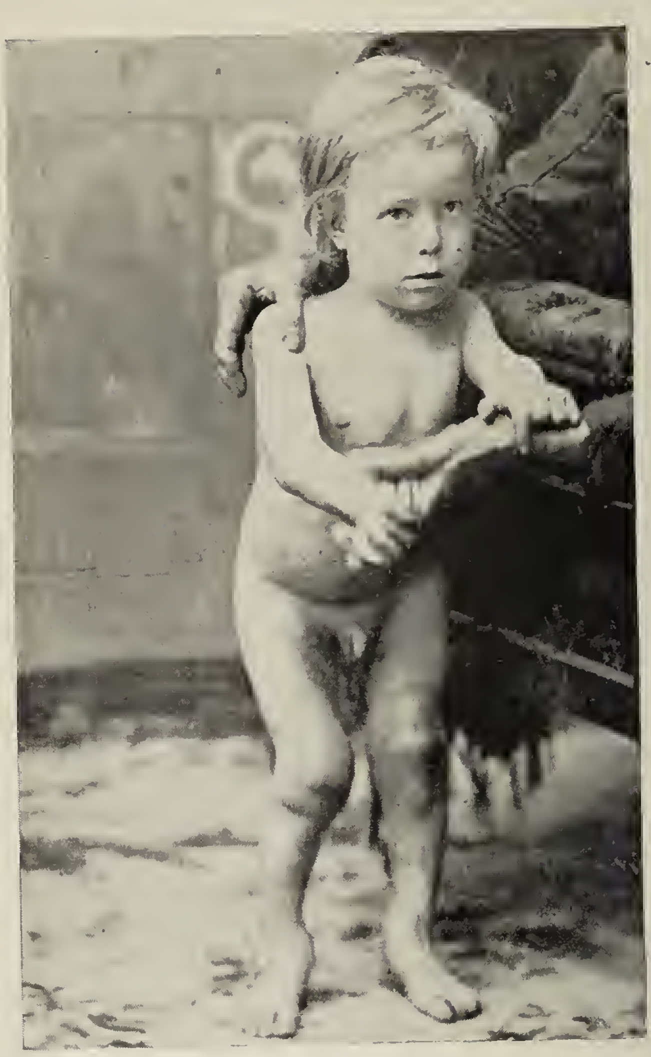

Fig. 2.—To show the patient's general rhachitic condition.

For consolation in this I find in the *Gazeta Lekarska* No. 39, 1893, a case of hysteria reported by Gajkiewicz. Among other symptoms there was œdematous swelling of the right arm and forearm; this swelling was hard, indolent, and persistent, but the skin over it was pale. This shows to what extent hysteria may carry one.

I now have under observation a young girl about fourteen years of age. She had undoubtedly a tuberculous knee, was extremely nervous, and, as poverty prevented proper nourishment, I insisted on her being sent to a hospital. Unfortunately, she was obliged to associate with three patients with hip-joint disease. The knee improved satisfactorily and in due time she was discharged from the hospital. While in the hospital she asked me one day to examine her hip, as she thought she too was getting hip-joint disease. I noticed that she held the hip quite rigid, but soon satisfied myself that she had no hip trouble, although I forgot, it seems, to inform her of this opinion. After she left the hospital I instructed the mother to have her walk about, watching the knee very closely, and if any unfavorable symptoms presented themselves to report at once. After a few weeks the mother returned and informed me with great concern that her daughter had now hip-joint disease and was a hopeless cripple. She had lost all control of her bladder. She cried continually, rolling and tossing on the bed, and exclaiming in a loud and excited manner that she wished she might die. I found the leg, thigh, and hip held in the characteristic position of hip-joint disease. Whenever I attempted to bring the popliteal space down upon the table there was the typical occurrence of lordosis of the spine; all the muscles of the hip were perfectly rigid, and I could get no movement of the hip joint; there was atrophy of the calf, thigh, and gluteal muscles, and if it had not been that there was no shortening I might have been led to make a diagnosis of hip-joint disease. From her extreme nervous condition I suspected mimicry, and after three or four examinations at intervals of a week I satisfied myself that my suspicions were well founded. Sending the mother from the room, and getting some one to distract the girl's attention, I straightened the limb and moved it freely in every direction. As soon as the sympathetic mother returned she immediately brought her limb into the position in which she had seen the other patients', and refused to walk. I have seen the patient a number of times since, and am sure she has nothing more or less than hysterical hip-joint disease.

Hæmophilic joint disease is quite difficult to recognize, as the hæmorrhage is from the synovial membrane. The symptoms given by Howard Marsh are as follows: "While bleeding is already taking place elsewhere, or as the first event is a hæmorrhagic attack, one of the joints (the knee is a convenient example) is found to be the seat of a suddenly developed enlargement, sometimes only amounting to a slight, puffy swelling, but often distinctly fluctuating, and evidently caused by fluid in the synovial cavity. There is little increase of heat, but the joint is often painful on movement and tender, as if affected with subacute rheumatism. Subsequently the swelling gradually subsides, and the joint may entirely recover, but in many cases puffiness and stiffness, varying in amount in different cases, remain, and are accompanied by frequently relapsing pain and tenderness, which prevent the patient from walking. In some instances the joints become more and more impaired by repeated hæmorrhages and the inflammatory attacks to which they give rise." I have seen but one case, and this, as regards the history about the knee, was much the same as to symptoms as is stated by Mr. Marsh; but the history of the hæmorrhagic diathesis was not discovered until repeated hæmorrhages followed the excision of the joint.

Loose bodies in joints may occur without any trauma, such as masses of condensed fibrin pressed into shape, or connective tissue and fat, or a sort of albuminous material which seems to be a coagulation of the synovial fluid. Of course, the acute attack will help in the diagnosis, but, after repeated attacks of pain and locking of the joint, the patient is quite likely to get a chronic inflammation.

Mrs. B., aged fifty-three years, was admitted to St. Luke's Hospital and assigned to me for treatment, giving the following history: Since ten years of age she had had more or less pain in the left knee, varying according to rest and use. She was very thin and small of stature.

There were extreme atrophy of the leg, enlarged knee, rounded and spindle-shaped, with marked thickening of the synovial membrane and some abnormal fluid in the knee; shortening of the leg, pain on motion, the knee flexed, and neuro-muscular spasms of all the muscles about the joint. I informed the patient that I feared she was suffering from tumor albus, or rather white swelling, and she remarked that she had often been told this by physicians. I applied a plaster-of-Paris cast, but was unable to straighten the leg. I then resorted to extension by weight and pulley, again meeting with failure so far as the straightening was concerned, but the synovitis was greatly improved, and the spasm of the muscles was also disappearing. I was able to flex and extend the joint up to a certain point, where I met with a sudden check. Realizing some mechanical obstruction and using my entire strength, I could feel a sudden slipping or giving within the joint, and with a quick snap the knee was completely straightened. As soon as my patient recovered from the shock caused by the pain, she exclaimed: "There, I have been dreading that, I have been dreading that ever since I came to the hospital, for I knew it would have to happen before you could get that old leg straight." Then, by considerable coaxing and suggesting, she was induced to give a typical history of a loose body within a joint.

Bursitis, while not a common disease, is met with, the hip and knee probably being the only positions where it might be confused with true hip-joint disease or white swelling. About the hip, when the obturator internus bursa is inflamed, the tumor of the bursa here must be distinguished from a beginning abscess. One can readily understand how the joint would be more or less fixed by the spasm of the muscles. In the knee a large bursa may develop in the quadriceps tendon (the subquadricipital); this often opens into the joint.*

In traumatic joints, where it runs a chronic course, it is very difficult to differentiate from a true tuberculous disease of the joint, for we well know how often a tuberculous joint disease dates from an injury. We know, too, that in tuberculous diseases of the joints there are two great classes pathologically, one which begins in the soft parts and the other in the bone, resembling two forms of traumatic synovitis—synovitis with effusion and dry synovitis.

Dry synovitis is a disease which rarely attacks any joint but the knee, and often occurs in rheumatic patients. How difficult to distinguish from tuberculous joint beginning in the bone!

It would hardly seem possible for incised wounds of joints to confuse us. Permit me to cite a case:

A young man in this State is under my care with a partially ankylosed knee, with a large cicatrix near the inner border of the patella, which, he informs me, followed an injury that occurred about a year and a half ago. He still has pain, flexion, and extreme atrophy of the calf and thigh. After considerable questioning he stated that at the time of the injury, which occurred nine months before I saw him, there was a slight abrasion of the skin at the site of the present scar. Has this young man a tuberculous knee or simply a traumatic joint with an incised wound followed by suppuration and destruction of the joint?

In gouty joints it would be only the chronic form which would puzzle us, or the so-called hereditary form, if such there be.

Tumors of joints are neoplasms originating in or about the articular ends of the bones, and for our reputation's sake must be early distinguished from tuberculosis.

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* *International Encyclopædia of Surgery.*

Syphilitic joints are, I am sure, very common and closely resemble, especially the hereditary form, tuberculosis of joints. My only means of distinguishing them is by close observation and by asking very embarrassing questions of the parents. If one is in some doubt, a persistent use of mercury will soon decide the question.

Scorbutic Joints.—So far as the records in the United States show, the first case of a child suffering from scurvy was seen at the Foundling Hospital in New York in 1889. No diagnosis was made in this case, however; the patient died, and the post-mortem first revealed the true nature of its disease.

During a recent discussion on infantile scorbutus at the New York Academy of Medicine several cases were cited where the swellings of the articular ends of the bones of the lower extremity had led to error in diagnosis.

There was one case reported in which a swelling about the knee had been diagnosticated as sarcoma; another, tuberculous osteitis of the knee; and a third, infantile paralysis, on account of the helpless condition of the legs.

Dr. H. L. Taylor had seen a case that had been taken for Pott's disease and for hip-joint disease. Of course, the spongy or bleeding condition of the gums and the history and general appearance of the patient would be all that would assist us in distinguishing it from tuberculosis.

From the fact of so many prominent men having made errors in diagnosticating the cases just reported, and from the recent discovery of this disease affecting the joints of infants, I feel quite sure the statistics of tuberculosis have been increased.

Dr. Royal Whitman has read before the American Orthopædic Association an article entitled Bending of the Neck of the Femur in Adolescence. He called attention to a deformity of the hip joint which develops in adolescence, occurring at a period of rapid growth, during weakness and instability of the bones which are subject to overwork or strain by occupations necessitating long standing or the carrying of heavy burdens.

The symptoms which were presented were as follows: "Without apparent cause, or following a slight injury, the patient begins to limp and to complain of fatigue and pain about the affected joint on motion. Shortening of the limb is soon apparent; the limb is usually slightly rotated outward, extended or slightly flexed; the motion of the joint is somewhat limited, particularly in abduction; there is no local swelling or tenderness on pressure. Naturally the shortening is due to the elevation of the trochanter above Nélaton's line." How easily one might fall into the error of diagnosticating such a case as tuberculous disease of the hip! I recall only one such case in my own practice, and I assure you the parents grew quite anxious before I succeeded in finding the cause of the pain, shortening, and slight pain on abduction, of which she complained; in fact, I believe the only reason I did not make an immediate diagnosis of beginning tubercular hip-joint disease was because there was no atrophy. I had the antecedent history in this case of tuberculosis, but, as the young woman was extremely fleshy, I suspected bending of the neck of the femur, and demonstrated to my own satisfaction that this was the trouble.

Lovett and Morse some time ago reported a number of cases which they designated transient or ephemeral hip disease. It is a form of disease of the hip with the characteristic symptoms of the more chronic form, but of very short duration. I simply refer to it here, for, so far, the pathology is conjectural.

There is another form of joint trouble which I simply wish to mention—a trouble upon which the grandmothers lay so much stress and designate as "growing pains." I am sure we all become disgusted with this term, because the laity suggest it as the cause of every pain to which a growing child may fall heir. The pain is brought on by fatigue, strains, or exposure. I believe it is nothing more or less than a hyperæmia or anæmia of the epiphyses. It certainly seems far-fetched when we are mystified to such an extent that we confound osteo-sarcoma with tubercular hip-joint disease.

Three years ago I was asked to see a young woman who had come from the country to be relieved of extreme pain radiating about the hip and down the thigh to the knee.

I found night pain, some limp, extreme atrophy, and a slight sensation of roughening of the hip joint was conveyed to me while manipulating the hip. The family physician feared tuberculous hip-joint disease, but, as there was no spasm of the muscles or any shortening, and as he had treated her four years before for inflammatory rheumatism, I was confident that it was not tuberculous hip-joint disease, but must be rheumatic.

This was the last seen of the case until nine months later, when I was requested by a general surgeon to see a case of hip trouble with him. We discovered in this same case a tremendous osteo-sarcoma involving the entire shaft of the femur and the pelvis.

The following case I have reported before the North Dakota State Medical Society, but, as I have followed up the case and have a more complete history, I beg to be allowed to repeat it here:

A Case of Osteo-sarcoma simulating Hip-joint Disease.—On April 2d Mr. G. called at my house stating, that he had been directed by his family physician to consult me regarding his child.

He was anxious for me to go at once, as the little boy was suffering great pain, even more than he had during the preceding weeks, as the jolting in traveling from a neighboring city had greatly intensified his suffering.

Upon my arrival at the hotel I found the mother carrying in her arms a little boy two years of age, holding him in such a position as to keep the thighs flexed, which position she told me was the only one in which he seemed to be comfortable.

The parents noticed, about two months previous, that the child when playing had a slight limp; a little later it would scream out in the night as if frightened; still later it would have intervals of screaming and crying for some time during the night, the limp all the time becoming worse.

At last it refused to walk or move the left leg, or even allow it to be moved, and during an entire night would sleep but a few moments at a time. During the day, if the limb was not disturbed, it would seem quite comfortable.

The child had a pinched or weazened appearance, and certainly its face showed its suffering.

I noticed that it carried its left foot, the foot of the diseased limb, resting upon the right, which position, I was informed, it held night and day.

There was extreme abduction of the thigh, and I noted a slight fullness about the hip and enlargement of the inguinal glands.

When the child was laid on the bed the thigh was flexed to about a right angle. When I brought the popliteal space down upon the bed there was the characteristic lordosing of the spine. I could get little or no movement of the hip joint, due to the very great spasm of the muscles of the pelvis and thigh. Extension of the leg in the line of deformity seemed to give relief; at least, the child would cease crying.

I did not attempt the measurement of the limb as to length and circumference, as the examination I had made caused such excruciating pain. I will state, however, that I remarked at the time that the limb was not atrophied, as cases of tuberculous hip-joint disease are, and that it looked to me if anything a little larger than its fellow. As the child had phimosis and had some trouble in urinating, and as it would be necessary for me to chloroform the child for this, I informed the parents I would complete the examination for the hip at this time. However, I stated to them that from the history and present appearances their child was undoubtedly suffering from tuberculous hip-joint disease, and as the child had a temperature of 100° F., and from the enlarged hip and swollen glands, I diagnosticated an abscess.

On the following morning I chloroformed the boy, and after relieving the phimosis I turned my attention to the hip, which, under the anæsthetic, was completely relieved of the neuromuscular symptoms which were present before anæsthesia. The flexion was almost completely overcome; in fact, extension, flexion, rotation, and abduction were about normal. This made me more positive in my diagnosis of hip-joint disease, and just before applying the hip splint I determined to carefully examine the abscess, as I had not had an opportunity to do so before. Instead of finding fluctuation, to my surprise I found a marked induration, especially in the inguinal region, very little about the external aspect of the pelvis. When I made pressure in the pelvic region I was surprised to find that this induration would be felt by making considerable pressure, extending from the ilium across to nearly the median line and within half an inch of the umbilicus. I then suspected for the first time that I had a case of osteo-sarcoma instead of tuberculous hip-joint disease. I informed the mother of my mistake in diagnosis and asked for counsel, and as she left the choosing of consultants to me, I assure you I called surgeons of no mean ability. We diagnosticated an osteo-sarcoma. In examining by the rectum we found that the disease was very extensive; the sarcomatous tissue could be felt all about as far as the finger could reach.

It seemed surprising that the functions of the bowels had never been interfered with. The surgeons present agreed that there was nothing to be done for the child. This was about six weeks ago. I have since received a letter from the father stating that the tumor was increasing in size very fast.

I am aware that "osteo-sarcoma affects a neighboring joint comparatively seldom, even at times passing outside the articulation from one bone to another";[*] but I am quite sure that in this case, if not sarcomatous, there certainly must have been an inflammation of the joint to have produced the symptoms which were present, and that is my only excuse for having been led so astray in my diagnosis.

This is the report *verbatim* as I gave it before the society referred to, but, as I was very anxious to follow up the case, I corresponded with the parents and family physician.

The following is my last letter to the doctor and his reply:

St. Paul, Minn., *August 11, 1893.*

My dear Doctor: You will doubtless remember the case of Mr. G——'s little boy whom you sent me. I write you, as I am very anxious to know from a scientific standpoint what has become of the case, as it was a very unique one.

Fraternally yours,
Arthur J. Gillette.

To this he replied:

Long Prairie, *August 12, 1893.*

Dear Doctor: Should have written as I intended to do about this case, but neglected it. The trouble was undoubtedly a deep-seated abscess within the pelvis, the contour as it arose in the pelvis leading one to think of osteo-sarcoma. My attention was called to the appearance of the parts by the parents, not long after returning, and I could easily see that it was a large pelvic abscess. I lanced it freely just internal to the femoral vessels, and there was immediate relief. Whether it was connected with the hip joint or not I could not say, but the little fellow is all right to all appearances, walks well, sleeps well, and eats heartily. Excuse me for not writing before. Any further information I shall be glad to furnish. Yours truly,

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THE ÆTIOLOGY OF STRICTURE OF THE MALE URETHRA,

WITH SPECIAL REFERENCE TO ITS RELATIONS TO GLEET.[*]

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Few subjects in the literature of medicine have been more generously dealt with than the one which forms the title to this paper. This subject has been, and still is, prolific of discussions, most of which have, however, been fruitless, and have tended but little to the elucidation of the truths which underlie this vexed question.

It is but a comparatively recent period since the urethra was almost a *terra incognita.* The facilities for examining it during life were imperfect, and the opportunities for examining it after death were neglected. Its pathology was in a chaotic condition and its treatment was unsatisfactory. This was especially so in the diseases of the urethra which were accompanied by a chronic discharge called gleet.

Until about a quarter of a century ago gleet was simply recognized as the muco-purulent discharge resulting from a chronic inflammation of the urethra; no well-defined ideas were entertained regarding its causation further than that it was usually an imperfectly cured gonorrhœa. The unsatisfactory status of its pathology, and the equally unsatisfactory results of its treatment, made the period ripe for the reception of views radically different from those that had been previously entertained and from the criterion of results found wanting.

At this period Professor F. N. Otis, of New York, came to the front as the promulgator of views on the ætiology of gleet which reduced its pathology and treatment to a very simple basis. The teaching of Professor Otis was not only widely disseminated, but received a general credence from the medical profession of this country, and soon established a new school of urethral surgeons. The followers of the new and the adherents of the old school of genito-urinary surgeons were soon engaged in a heated controversy which waged for years around the battlefield of gleet, with varying degrees of success on either side.

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[*] *American Text-book of Surgery*, p. 272.

[*] Read before the Pittsburgh Academy of Medicine, October 22, 1894.

The two schools still stand arrayed against each other, although the line of demarcation has become less distinct; many of the foremost adherents of the new school have recanted, at least in part, the doctrines they once enthusiastically upheld.

The theories promulgated by Otis concerning the caliber of the urethra, and more especially on the causation of gleet, were so antagonistic to those previously entertained, and have had such an important bearing on the treatment of both stricture and gleet, that they will be entered into somewhat in detail as a preliminary to their further consideration. Condensed into the smallest compass, Otis taught that the normal urethra was practically a tube of uniform caliber which bore a definite proportion in size to that of the penis, and that any deviation from the uniformity of its caliber whereby the dilated urethral canal was narrowed was not only pathological in itself but was also capable of producing or perpetuating a gleet.

To quote his own words, in his book on *Stricture of the Male Urethra*, page 20: "As the urine is propelled through the urethral canal it impinges with more or less force upon any contracted or salient point. The column of fluid is arrested, and in proportion to the degree of arrest is the force of the blow upon the mucous surface at this point. More or less hyperæmia necessarily ensues, and a condition is soon established well adapted to prolong an existing gonorrhœa, or which upon slight additional cause, such as venereal excitement, or even an unusually acrid condition of the urine, may result in the origination of a muco-purulent or purulent secretion.

"We may hence affirm as a most important axiom that the slightest encroachment upon the caliber of the urethral canal is sufficient to perpetuate a urethral discharge, or even, under favoring conditions, establish it *de novo* without venereal contact."

On page 75 of the same work there appears the following: "Chronic urethral discharge, commonly called gleet, is the signal which Nature hangs out to notify the intelligent surgeon that an obstruction to the normal working of the muscular apparatus of the urethra has occurred, that plastic material laid down in the antecedent inflammatory condition has begun to contract the normal urethral caliber, whether it be twenty or forty millimetres in circumference, and that nothing short of a complete restoration of the normal caliber will afford a permanent cure. Sandal oil may stop it for a time, injections of innumerable variety may any one of them remove it, but a little vinous or venereal excess will reproduce it, and thus the case goes on getting, as many such cases will affirm, a new clap for every woman looked at, until finally an attack of retention of urine calls attention to the fact that the patient has a strictured urethra."

The teaching of Professor Otis that gleet owes its origin and existence to a stricture, however slight it may be, and the natural sequence that the cure of the gleet depended upon the removal of the obstruction to the passage of the urine, reduced the treatment of chronic urethral discharge to a very simple basis: first find the stricture and then remove it.

The simplicity of this rule, the dogmatic manner in which it was enthusiastically taught, the mathematical precision of it, as it were, by which the road to success in urethral surgery was easily trod, contrasted so strikingly with the devious and uncertain ways in which the older surgeons taught us to wander that it is not to be wondered at that an army of practitioners enthusiastically and blindly adopted this rule of treatment, with the result that in the treatment of gleet there has been more pernicious activity displayed, more unjustifiable operative interference than in any other department of surgery.

The American literature on this subject is still strongly tainted by the views of Otis, and his disciples have ample authority behind which to intrench themselves in the defense of their views, for it is only necessary to refer to the standard works on the subject to determine the point in their favor by the weight of authority.

To illustrate what I refer to, I have selected the following from the works most frequently used by the American practitioner:

The *American Text-book of Surgery*, page 861; also the *International Encyclopædia of Surgery* (Am. ed., vol. ii), page 358, referring to the classes of urethral discharge, says: "And those commonly known as gleet, which in almost every instance will be found associated with urethral coarctations, often of the sort known as strictures of large caliber."

Holmes's *System of Surgery* (Am. ed., vol. ii), page 980: "The author does not give sufficient prominence to the fact that the vast majority of gleety discharges depend upon the presence of stricture."

Ashhurst's *Text-book of Surgery*, sixth edition, page 1050: "One of the earliest symptoms of stricture in many cases is the presence of a slight gleety discharge."

Diseases of the Urinary and Male Sexual Organs, by William T. Belfield, page 90: "That a gleety discharge which has made the usual rounds among physicians and has for years resisted medication by injections and the passage of large sounds (12 to 16 English) is often maintained by a slight constriction of the urethral caliber, and completely and immediately relieved by the division of such constriction, I have repeatedly demonstrated."

Genito-urinary Diseases with Syphilis, by E. L. Keyes, page 135: "This frequency of micturition is the symptom of stricture, next to gleety discharge, which is least often absent."

Perhaps the most ardent advocate of the dependence of gleet upon stricture that has appeared in recent years is G. Frank Lydston, whose work on stricture of the urethra, issued during the past year, would almost out-Otis Otis. The following is extracted from page 142 of this work. Speaking of strictures of the pendulous urethra, he says: "They are a potent cause of chronic urethritis and gleet, and explain the obstinacy of very many apparently incurable cases of urethral discharge. Even when they are not, strictly speaking, the cause of chronic inflammation, they invariably tend to perpetuate it.

"If the profession had nothing else for which to thank Dr. Otis, it would still be under lasting obligations to him for his demonstration of the true pathological condition in the majority of these obstinate cases of gleet which have so long been the *bête noire* of the surgeon."

We are not bound to accept mere statements as proofs, no matter how positively they are made, nor who their author is. At the same time it would be obviously absurd to condemn a theory so well supported and so generally followed, as is the theory that gleet is dependent upon stricture, without good and sufficient reasons for so doing.

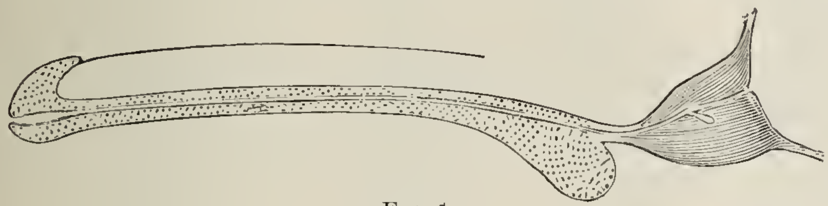
Fig. 1.

Before venturing to cite the writer's views on this subject it will be advantageous to first take up the consideration of the normal urethra as a preliminary to the further discussion of stricture and its relations to gleet.

The urethra in a state of quiescence is a closed canal, its mucous surfaces being retained in apposition by the elasticity and contractility of the connective and muscular tissues which invest it throughout its whole extent. It is only, therefore, when the urethra is dilated, as during urination or instrumental interference, that a stricture is capable of demonstration.

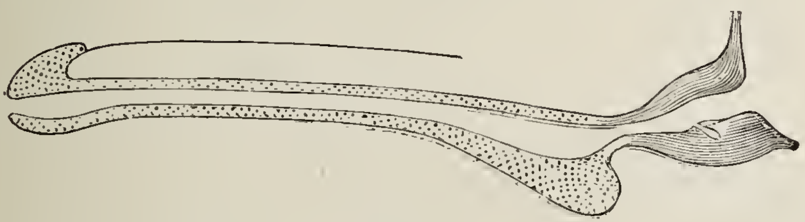
Fig. 2.

When the urethral canal is closed or at rest its lumen may be represented by a capillary tube which conforms to the curves of the urethra, as in Fig. 1.

It is self-evident that the lumen of the urethra, if a lumen may be said to exist under such circumstances, is uniform throughout, with the possible exception of the portion comprising the fossa navicularis, where the urethral walls are seldom accurately coaptated.

When the urethral walls are separated by intra-urethral distention, the urethra as it were unfolds itself and exerts a distending force on the peri-urethral tissues. Up to a limited degree of dilatation the urethra maintains a uniformity in its caliber; but as the dilatation increases the variability in certain portions of the urethra, not only of its own elasticity, but also of the resistance to displacement of the peri-urethral tissues, produces a variation in the caliber of the urethra which, at first sight scarcely recognizable, becomes on further distention very marked, as is shown in Fig. 2, and to a still greater extent in Fig. 3, where the distention is very great.

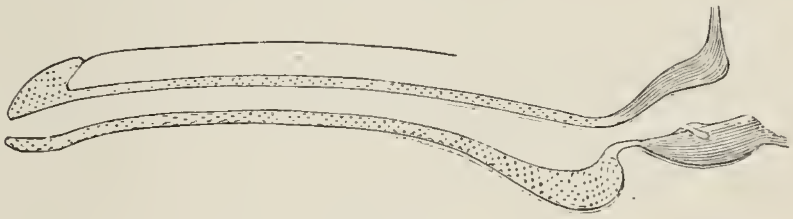
Fig. 3.

A few years ago the writer devised an instrument for taking a diagram of the dimensions of the urethra which is called a urethrograph (Fig. 4). This instrument is so constructed that it will take a diagram of the dimensions of the whole urethra under a uniform but adjustable degree of distention. The observations which I have made with the urethrograph have not shed a new light on the topography of the urethra, but have simply served to confirm the observations that anatomists have long since made—namely, that the distended urethra is a canal of variable diameter, no one part of which can be taken as a criterion of the dimensions of the other. Nor can one urethra be taken as the standard from which to judge others, so much do they differ from each other in their relative dimensions.

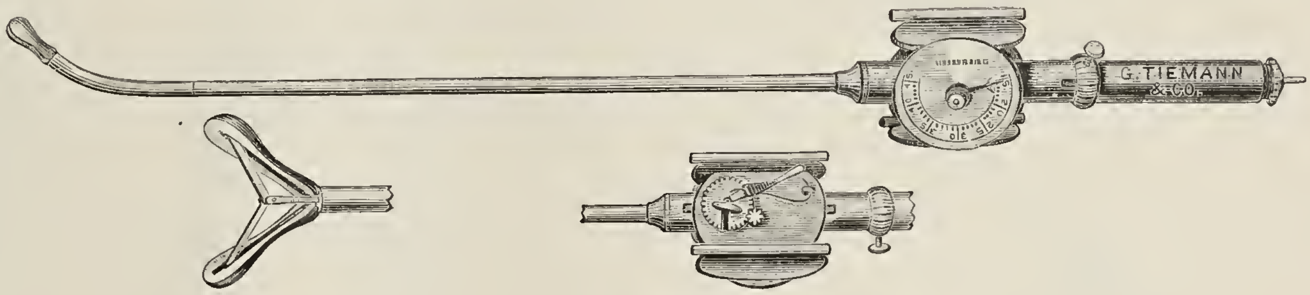

Fig. 4.

Not only does the lumen of one urethra differ from that of another, but each urethra differs from itself according to the degree of distention it undergoes. This is well illustrated in the following series of diagrams (Fig. 5) taken with the urethrograph from the same urethra under varying degrees of distention:

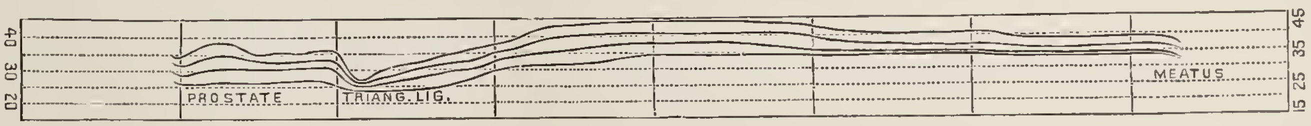

Fig. 5.

In studying these diagrams a word of caution is necessary in order not to misapprehend the contour of the urethra. The line traced by the urethrograph does not represent the contour of the urethra, it only shows the diameter of the urethra in millimetres at all points measured from a straight base line.

The first diagram, or the one nearest the base line, shows the urethra under a moderate degree of distention. The second, third, and fourth diagrams show the urethra under a progressively increased degree of distention.

It will be noticed that the greater the degree of distention the greater the deviation from uniformity of caliber; and conversely, the less the degree of distention the more nearly uniform becomes the caliber of the urethra. As the distending force exerted against the urethral walls by the urethrograph was certainly greater in the diagram nearest the base line than would be exerted by the passage of a stream of urine, the inference is fair that the urethra under a degree of pressure equivalent to that exerted by the passage of a stream of urine is a tube of almost uniform caliber, and under these circumstances conforms to the views of Otis concerning the caliber of the urethra. The chief point of interest which these diagrams bear to the subject of stricture is that the healthy urethra as distended by the passage of a stream of urine is a canal of almost uniform dimensions, and the same urethra under a degree of distention no greater than is habitually exerted by the passage of urethral instruments shows marked irregularities in its caliber.

The caliber of the urethra is thus a fluctuating quantity, its variations depending on its degree of dilatation; no standard can be given as accurately representative of the normal urethra. Sir E. Home has given a cast of the normal urethra under forced dilatation (Fig. 6) which may be considered a fair representative of the overdilated urethra.

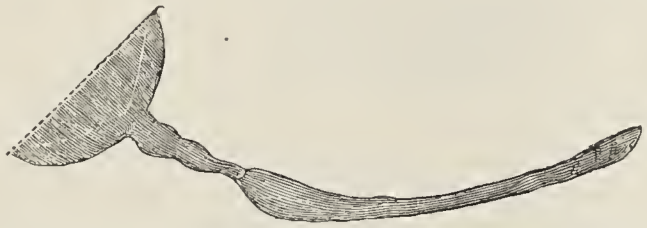

Fig. 6.—Diagram of urethra, from Sir E. Home, showing its extensibility.

In a memorable controversy between Dr. Sands and Dr. Otis on this subject the former exhibited a series of casts of the urethra (Fig. 7) which illustrates the natural irregularities of the dilated urethra. Dr. Sands contended that these irregularities were present in the healthy urethra and were in no wise pathological. To this Dr. Otis replied that these irregularities were either pathological in their formation or, if not, would, by retarding the stream of urine and thus creating a point of increased friction, be capable of perpetuating a urethral discharge.

Since no evidence could be brought forward to prove the absence of a pre-existing urethritis in the cases from which these casts were taken, the arguments put forward that the irregularities shown were pathological in formation could not be refuted, although the weight of evidence was against such being the case. In considering this subject, it occurred to the writer that a series of casts of the infantile urethra would be representative of the urethra under conditions which preclude the possibility of pathological irregularities in its formation. The opportunity was therefore availed of to make a series of wax casts of the infantile urethra, cuts of which are given in Figs. 8, 9, 10, and 11.

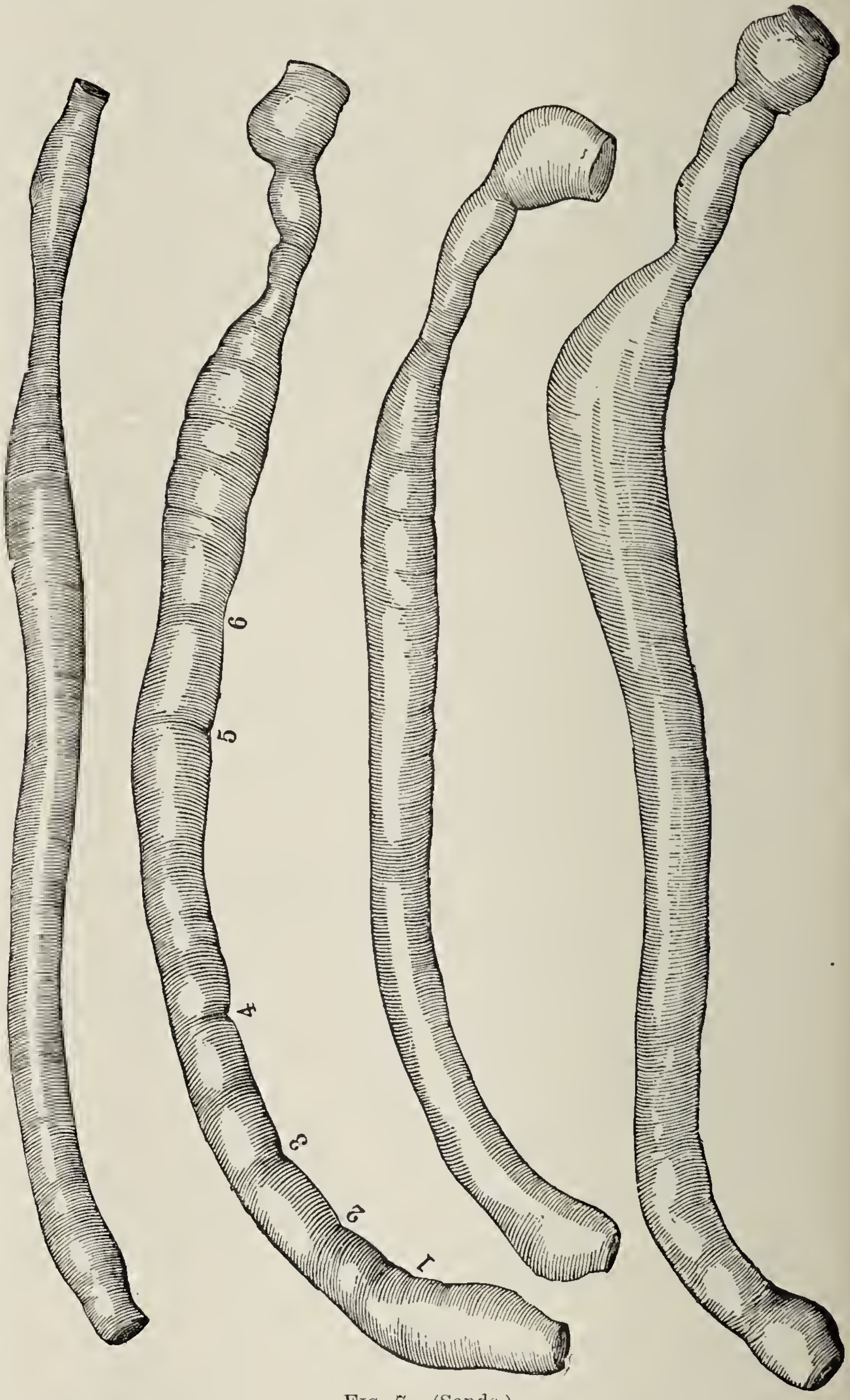

Fig. 7.—(Sands.)

Fig. 8 was taken from the urethra of an infant two weeks old; the injection was made under water; the wax was forced into the bladder until a stream issued from the meatus which was estimated to be equivalent in force to that of a stream of urine. In a few moments the stream of wax solidified, the bladder and urethra were laid open, and the cast was extracted.

Fig. 9 was taken in the same manner from an infant two months old.

Figs. 10 and 11 were taken from infants aged six and nine months respectively.

In these cases the prepuce was surrounded by a ligature to prevent the escape of the injection, which was forced into the bladder under a pressure almost sufficient to rupture that organ.

In comparing these casts the fact already pointed out is apparent—namely, that the urethra under a normal degree of distention has an almost uniform caliber, but under forced dilatation its caliber varies according to the degree of distention, so that no one part can be taken as the criterion of the dimensions of the other.

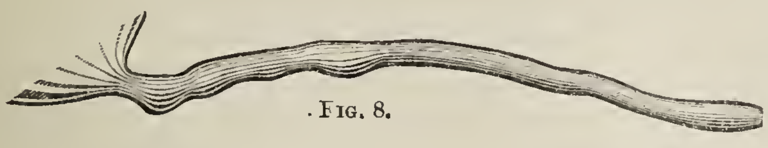

Fig. 8.

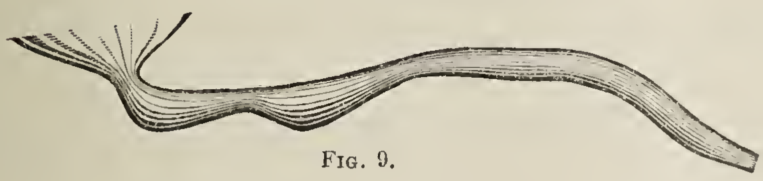

Fig. 9.

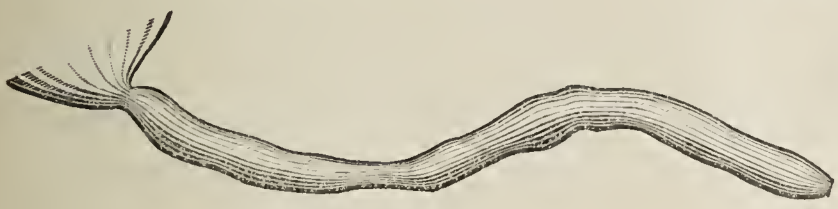

Fig. 10.

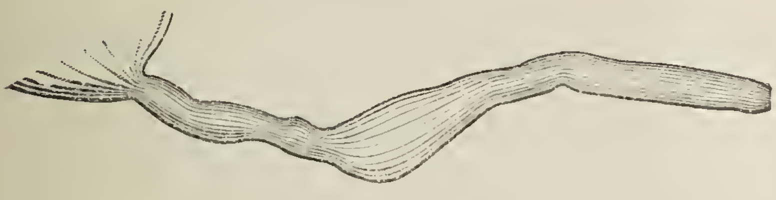

Fig 11.

These facts are of the greatest importance in the consideration of the subject of stricture, and are in direct variance with the theories entertained by the followers of Otis, who maintain that the dilated urethra has an almost uniform caliber, and that a stricture may be of any grade of severity, from one which completely occludes the urethra to one which is only perceptible on forced dilatation of the urethra, the latter being as true a stricture as the former, each having the vicious properties in greater or less degree of capability of retarding the stream of urine, and of perpetuating a urethral discharge.

It is an incontrovertible fact that a stricture may narrow the stream of urine or occlude it entirely, but in order to do this it is evident that it must, in the light of what has been said on the subject, be a well-defined stricture, and be capable of demonstration by instruments which do not dilate the urethra to a greater degree than is exerted by the passage of the stream of urine. We have seen that the overdilated urethra exhibits well-marked points of contraction which are not perceptible under a degree of pressure equivalent to that exerted by the passage of a stream of urine. Therefore these points that are only elicited by overdilatation of the urethra can in no wise be considered as acting as points of increased friction or of retarding the stream of urine, and are as innocuous from this point of view as if they never had existed.

Abnormal coarctations of the urethra which are insufficient to narrow the stream of urine are not strictures in the true sense of the word and by some writers do not receive recognition. Sir Henry Thompson defines stricture as "a deposit of lymph around the canal of the urethra at some point which, not permitting it to open to the pressure of the stream of urine, narrows the current to a greater or less extent."

The lumen of the male urethra is such a variable quantity that no definite size can be fixed as the one which would constitute the limit between a strictured and a non-strictured urethra. Since pathogenic properties have been attributed to even the slightest coarctations in the dilated urethra, their recognition is necessary. We may therefore divide strictures into two classes, the true and the false, or in the generally accepted classification of strictures of large and small caliber.

Strictures of large caliber may be defined as those points of narrowing in the urethra which are not of sufficient extent to retard the flow or narrow the stream of urine.

Strictures of small caliber are those points of narrowing in the urethra which are of sufficient extent to retard the flow or narrow the stream of urine.

In referring to stricture of large or small caliber in the remainder of this article this definition will be strictly adhered to. A stricture of large caliber may be and often is perfectly innocuous, but the baleful effects of a stricture of small caliber are too often made manifest. By obstructing the flow of urine it may be the starting point in a series of calamities which not infrequently terminate the existence of the patient, as many a surgical kidney can attest.

Stricture of the urethra may be due to a variety of causes, chief among which are the following:

1. Tonic contraction of the circular muscular fibers of the urethra, producing spasmodic stricture.

2. New growths which encroach upon the lumen of the urethra.

3. Urethral and peri-urethral exudates of an inflammatory origin which have not undergone organization.

4. Cicatricial contractions following injuries, false passages, and caustic applications or injections.

5. *Gonorrhœal infection of the urethra, which produces in its chronic form a specific type of urethritis which goes on to the formation of stricture tissue.*

The first three varieties are not, in the strict sense of the word, strictures, and as they have but little bearing on the subject under discussion they will be considered but briefly.

Spasmodic stricture is produced by a tonic contraction of the circular muscular fibers of the urethra. These fibers are present to a marked extent at the apex of the prostate gland, where they form the external sphincter of the bladder.

Fig. 12 shows the situation of these circular muscular fibers of the urethra and the effect on the posterior urethra of a distended bladder.

It is the inability to relax at will the sphincteric action of these muscular fibers that produces the retention of urine that is so frequent a concomitant of operations on the rectum or perinæum. This variety of spasmodic stricture is but transitory in its nature and is entirely foreign to the subject on which this article is written.

True spasmodic stricture not due to such causes as the above is very rarely met with, and where present it will usually be found associated with some pathological condition of the urethra, most frequently a granular urethritis with the formation of stricture tissue at the site of the spasmodic stricture, or in rare cases at a distant point. So rare is this form of stricture that its very existence has been doubted. A case recently under the writer's observation is so typical of this class of stricture that it is here briefly reported.

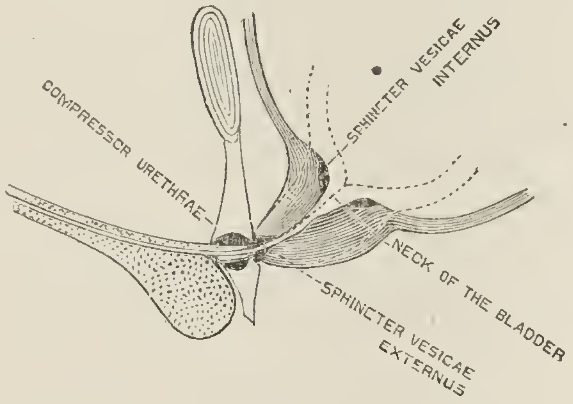

FIG. 12.

A gentleman while still a youth contracted a gonorrhœa which invaded the posterior urethra and set up a cystitis. After a few months this was followed by retention of urine requiring the use of a catheter. Since that date retention has been constant for a period of twenty years.

On examination, a No. 27 F. steel sound could be readily passed into the bladder, although it was firmly grasped at the membranous urethra. A No. 5 F. soft bougie was grasped with equal firmness at the same place. To test this point an endoscopic tube was passed through the stricture and withdrawn until its extremity rested against the anterior surface of the stricture. A filiform bougie was then passed along the tube and through the stricture, by which it was tightly grasped, demonstrating the muscular element in the stricture. The endoscopic examination showed that at this situation patches of the urethra had undergone cicatrization, and it is probable that it was the irritation due to the contraction of the cicatricial tissue on the terminal filaments of the nerves that caused the spasm of the muscular element of the stricture.

External urethrotomy was performed. The division of the stricture restored at once and permanently the patient's ability to urinate at will without the use of a catheter.

Strictures resulting from the encroachment of new growths or the formation of retention cysts are not in the strict sense of the word strictures, and their consideration further than the mere mention of their existence would be to encroach upon the space intended for the consideration of subjects more relevant to that under discussion.

It should not be forgotten, however, that all the obstructive symptoms of a true stricture may be present, and in the papillomatous form of tumor there may also be present an obstinate urethral discharge.

Strictures produced by urethral and peri-urethral exudates of an inflammatory nature which have not undergone organization are sometimes called soft strictures and sometimes inflammatory or irritable strictures. They owe their existence to a recent and perhaps still active inflammation of the urethra, usually acute gonorrhœa.

In acute urethritis the mucous, submucous, and occasionally the cavernous tissue is infiltrated by serum and leucocytes. In addition the epithelium of the urethra is stimulated to increased cell proliferation, the resultant being a urethra with thickened walls and diminished resiliency, which may be of such a degree as to narrow the stream of urine, and for the time being be classed among the strictures of small caliber.

On the subsidence of the inflammation the urethra gradually returns in the majority of cases to its pristine condition, but in a respectable minority resolution may not be complete. A condition of chronic infiltration may persist for a time, to either ultimately undergo absorption or in rare cases organization with the production of true stricture tissue.

There are too many observations confirmatory of the latter change to permit of its being controverted, but I venture to predict that the pathological investigations of the future will show, if it has not already been demonstrated, that this process in the formation of true stricture is far from as common as is generally supposed.

Under the head of traumatic stricture are classed all strictures resulting from traumatism, such as direct injuries from without or from within, as by unskillful use of instruments or the application of caustics or corrosive injections.

When the urethra has been subjected to traumatism of such a degree of severity as to lacerate it, a splice of new tissue fills the rent and the foundation of a stricture is laid. If the rent be small, the plastic material laid down to repair the injury may not be sufficient to produce by its subsequent cicatrization and contraction a perceptible diminution in the expansibility of that portion of the urethra and no stricture results; if, however, the laceration is severe, as occurs in complete rupture of the urethra with separation of the torn ends, the resulting cicatrization of the new material produces a most intractable stricture which requires the utmost watchfulness and patience in order to maintain a sufficient patency of that portion of the urethral canal.

The rapidity with which this variety of stricture forms is astonishing, and is in marked contrast to the formation of the next variety of stricture. The following case illustrates this rapidity of stricture formation. It was a complete rupture of the membranous urethra, with extravasation of urine, and was treated by retrograde catheterism. A soft catheter was retained in the urethra for three days, after which a No. 28 F. steel sound was passed with ease on every alternate day for a period of three weeks, when the treatment was abruptly terminated by the elopement of the patient from the hospital.

Five weeks later the patient reapplied for treatment. An examination of his urethra showed that there were good reasons for the sincerity of the penitence he manifested at his self-imposed curtailment of his treatment. The cicatrization of the new material that sealed the torn ends of the urethra had almost entirely occluded the lumen of the urethra through which the urine escaped drop by drop. The perinæum was riddled by fistulous openings through which micturition was painfully accomplished.

The upshot was a perineal section and a most commendable determination on the part of the patient to continue indefinitely and with the utmost assiduity the passage of the sounds upon himself.

The obsolete treatment of breaking a chordee was doubtless the parent of many a stricture, although the urethral rent must in most cases have been very small. It is not uncommon, however, for accidents to the urethra that at the time were considered but trivial to be productive of strictures, usually of a valvular nature, that seriously impede the passage of the urine.

In cases of traumatic stricture, even where the stricture is extensive, a dependent urethral discharge is extremely rare. This point will be referred to in the consideration of the next and last variety of stricture.

(*To be concluded.*)

DEMONSTRATION OF SKULLS SHOWING THE EFFECTS OF CRETINISM ON THE SHAPE OF THE NASAL CHAMBERS.*

By HARRISON ALLEN, M. D.,

PHILADELPHIA.

Medical observers in America have had little opportunity of studying cretinism. But I believe that we are apt to make a mistake in not bearing in mind the possibility of this morbid condition being met with in our clinical services. In metropolitan hospitals examples of cretinous dwarfs are not rarities. As for the conditions described by European writers as those of semi cretins and cretinoids, I believe that they are numerous, but are not so often sought for as they should be.

According to F. R. Sensberg (*Der Cretinismus mit besonderer Rücksicht auf dessen Erscheinung im Unter-Main- und Rezat-Kreise des Königreiche Bayern*, Wurzburg, 1825), the skull in cretinism is not of a single type. In the true cretin, that is to say, one associated with goître, with deep nose root and a bulldog-like head, the skull is thick, the occiput is flat, the sides of the head are broad and usually asymmetrical. The sutures are disposed to disappear early or at least irregularly. Virchow (*Untersuchungen über die Entwickelung des Schädelgrundes in gesunden und krankhaften Zustande und über den Einfluss derselben auf Schädelform, Gesichtsbildung und Gehirnbau*, Berlin, 1857) describes an entirely different type of cretin skull from the foregoing. It exhibits a tendency to synostosis, while a disposition exists to excess as well as in unusual positions of the Wormian bones.

Another cretinoid skull is known in which the bones are thin and in various places are without diploic structure. The mastoid processes are weak. The Valsalvian foramen at the angle of the occiput is large, and the opening between the basilar process and the petrous portion of the temporal bone nearly obliterated, affording but a small space for the passage of the nerves. The basilar process itself is nearly horizontal, thus resembling the condition known as the soft occiput of Elsasser.

Rosch (*Amt. Bericht über die Versamm. deutsch. Natur. u. Aerzte*, 1842, xx, 238–245) describes a cretin's skull in which the occiput, instead of being flat, exhibits a capsule-like projection of the under part; the forehead is low and slightly rotund; the two halves of the head are apparently shoved one on the other ("die beiden Hälfter des Kopfs verschoben und die eine steht hinter der andern zurück"). This language of Rosch is somewhat figurative, but doubtless refers to the fact that the two frontal eminences are asymmetrical, as also are the two sides of the occiput, that side of the occiput which projects farthest corresponding to the side of the skull at which the frontal eminence recedes. This peculiarity of the cranium is by no means confined to the cretin, but is mentioned by other writers, and is ordinarily attributed to Broca; the observation is thus found to be anticipated by Rosch by many years. Rosch describes another form of the skull—namely, the one in which the bones are thin. The dimensions are too small. The form of the skull is rotund; it may be so high on the sides as to constitute the sugar-loaf head (in some cases the occiput markedly projects, constituting what is called "cat head"), while all prominences and muscular impressions are inconspicuous.

I herewith exhibit two specimens of skulls belonging to the Wistar and Horner Museum of the University of Pennsylvania, showing what I venture to call cretinoid deformation; they are without history, but they conform in a manner sufficiently exact to the descriptions of foreign writers to permit me to so identify them.

In one of these specimens the bones are thick and appear to be imperfectly calcified, while the nose is prominent, the facial portions are stunted, the hard palate being small. I call attention particularly to the projection of the occiput; the occipital bone appears to have effected union with the parietals in such wise as to present a conspicuous depression between them. This appearance is called by some of the older writers "cat head" (Rosch, *supra*); it is by no means an uncommon contour, and can readily be detected in living subjects.

In the second example I show you of cretinoid deformation the nasal bones, instead of being prominent, are inconspicuous; indeed, one may say that there is no bridge to the nose, for the nasal bones, instead of being inclined forward and downward, are vertically disposed, and do not project in the least beyond the plane of the ascending processes of the maxillæ. It might at first sight be inferred that this was nothing more than the "falling in of the nose" as a result of loss of the normal structures by the ravages of syphilis; but the most casual observer will be convinced that this skull was not taken from a syphilitic subject. As in the first specimen, all the facial portions are dwarfed, the bones are thickened, and the hard palate is small.

In both specimens the inferior turbinated bones are lodged high up in the nasal chambers and give the impression of being of great size. It is probably owing to the extreme shortening of the face that a compensatory growth occurs in these bones in the vertical direction, the posterior nares in both specimens being disproportionately large. The floor of the nose is greatly depressed below the level of the anterior aperture. The frontal regions in both specimens are broad and thick, giving the appearance of the so-called "apple head" in dwarfs. The suture between the halves of the frontal bones is apparent.

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* Read before the American Laryngological Association at its sixteenth annual congress.

Bearing in mind the immense variety of appearances that one can secure in phases of malnutrition as affecting the head, and remembering that one must not expect to institute exact standards of comparison in studies of this kind, enough remains for me to be willing to state that the nutritive and developmental processes are evidently at fault in the cretinoid skull. In patients in whom I detect a bulb-like forehead with unnaturally projecting occiput, with depression between it and the parietal bone, where the external nose is dwarfed (or even, as opposed to this, the nasal bones are preternaturally high), the hard palate is small, and the posterior nares are of inordinate size, I should not hesitate to characterize such individuals as being cretinoid. If these conditions exist in persons of small stature (here not speaking of typical dwarfs) I should feel more than ever satisfied in using such a term in describing them.

These remarks are made with the hope that further observations may be elicited on the subject at the hands of those having large opportunities in public services. In these days of extensive immigration which brings large numbers of the impoverished class of Europe to our shores, it is not irrational to assume that many examples of "semi-cretins" or "cretinoid" individuals may be recorded. It is evident that important phases of prognosis and treatment of diseases of the nose and throat enter into conditions of this kind, and that all states of the development of the head should be known in studying the diseases of the nasal chambers.

THE GOLD PREPARATIONS IN SOME SKIN DISEASES AND SYPHILIS.

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There are so many preparations of a novel nature, or which are merely revivals of old ones in a new form, being daily offered to the medical practitioner that he is often at a loss whether to use any of them. Not content with the inherent qualities of these preparations, their promoters either vaunt them as universal panaceas or construct the reading matter so clumsily that one naturally inclined to test the efficacy of the drugs calmly puts them aside until such evidence is forthcoming as will prove convincing and be clearly set forth. It is for this reason that clinical experience is so valuable when based upon careful observation and a knowledge of the conditions present.

Our knowledge of the therapeutical action of gold has, up to within a few years, been based upon the hypothetical dicta of the alchemists. Gradually the matter was taken up again, at first by the Arabian physicians and afterward in Europe. Once more it fell into disuse, and was rescued from oblivion by Hahnemann, who introduced it in his pharmacopœia. However, this did not give it much of an impulse, and it is only of late years that this metal has undergone any serious investigation concerning its therapeutical properties. Among American investigators Bartholow, Heneage Gibbs, and Shurley are the most prominent. Dr. Shtcherbok has made thorough investigations also.

The most active salt of gold is the bromide, and it is particularly so upon the nervous structures, but small doses being necessary to produce effects. The action of gold is essentially that of an alterative. It has no cumulative effect; but, when toxic doses are administered, mental excitement, amounting to delirium at times, manifests itself. A prominent symptom of its excessive action is an excessive flow of saliva, the so-called *aurism.* Remembering this in connection with the fact that very small doses produce the effects of the remedy, more especially in the form of the bromide, some care should be exercised in its administration. Among the therapeutic effects of gold may be noted the fact that it is tonic, more especially to the nervous system, and this accounts for the fact that it is an aphrodisiac of no mean power. It was highly esteemed many years ago as an antisyphilitic, and recent experience confirms this view, more especially in the later forms of the disease.

The cutaneous troubles in which I have had occasion to employ the gold preparations to any extent are limited. In acne and eczema of a subacute or chronic character I have found arsenauro an invaluable adjuvant. On the other hand, in chronic eczema and in the later manifestations of syphilis mercauro has proved itself almost a specific, so much so that its administration was always attended by marked improvement, which ceased so soon as it was discontinued. This it was which attracted my attention to the gold preparations, and in investigating their therapeutical properties I have been impressed by the fact that the most active as well as most efficient salt of gold is the bromide. It not only acts powerfully when administered alone, but seems to increase the therapeutic effects of arsenic and of mercury, and for that reason much smaller doses of these agents may be given, better results obtained, and, at the same time, security from toxic effects will be secured. These are the qualities which recommend the preparations mentioned above, which are true chemical combinations and not empirical mixtures.

It may not be inappropriate to mention a few cases from practice illustrative of the good effects of gold preparations in diseases of the skin and in syphilis:

Case I.—Miss F. B., a dark blonde of seventeen years, has been suffering from a marked pustular acne for two years. She is very nervous in disposition. Vlemingkx's lotion ordered applied at night, and resorcin ointment every morning. In addition, the pustules were emptied thoroughly every day. Some little improvement showed itself, but it was not stable. A "nervous" attack would cause the eruption to manifest itself in a marked relapse. After two months of this treatment, with variations of the external measures, she was placed on ten drops of arsenauro three times a day. In one week the eruption had disappeared, and now, after a lapse of two months, no lesions have appeared.

Case II.—Miss B. R., a blonde of eighteen years, states that she has been suffering from a papular acne, with comedones, since she was thirteen years of age. Free incisions of the papules, together with a sulphur ointment locally, failed to procure any decided effects until arsenauro was used. Her face is now perfectly smooth and clear and downy.

Case III.—Miss M. P. was suddenly attacked by an intense pruritus, accompanied by a mild form of ichthyosis. The ordinary antipruritic solutions did not allay the itching. The peculiar form of pruritus, together with the ichthyotic condition (not congenital), pointed to a central origin of nervous nature. Added to the antipruritic solution was arsenauro, administered in ten-drop doses before each meal. Improvement set in almost immediately, and at the end of three weeks the patient was cured. This occurred despite the fact that the trouble had lasted about a month before I treated her, and despite all the local treatment which she had been given.

Case IV.—C. R., a man of about sixty years, has suffered from general pruritus for several years. At the time he applied for treatment he was emaciated and haggard from loss of sleep due to the obstinate itching from which he suffered. He could only rest after complete exhaustion, and even then sleep was not only not enjoyed, but lasted for the briefest periods only. He presented many of the symptoms of neurasthenia. An antipruritic lotion, to be applied three times daily, and arsenauro, in fifteen-drop doses before meals, have markedly ameliorated his condition. He bids fair to make a complete recovery in a short time.

Case V.—Miss M. Z., a girl of twenty-four years, has been troubled with a rosacea involving almost the entire face for a period of four years. She is of a markedly neurotic temperament, and her skin will become congested visibly if she gets excited in her conversation. The best reducing agents used externally have had but little influence upon the cutaneous affection. Her stomach was not in order, the trouble being, apparently, so-called nervous dyspepsia. Bearing in mind the close relationships between rosacea and gastric disorders, she was ordered five-drop doses of arsenauro before meals in addition to local applications. Marked amelioration of the gastric and dermal symptoms appeared, and now she is practically cured.

Case VI.—Miss H. L., a strong, stout girl of seventeen years, has suffered for a long time from urticaria. A close examination of her case shows that she is intensely susceptible to nervous perturbations. She complained of slight gastric crises at times, which disappeared spontaneously, but were always accompanied by a marked urticarial eruption involving the entire integument, including the scalp. While an antipruritic relieved the condition temporarily, internal measures failed to procure relief until fifteen-drop doses of arsenauro were given and diminished gradually to ten drops three times a day, until the condition was relieved. This relief has now lasted for four months with no indications that the disease will recur.

Case VII.—Mrs. B. H., an old lady of fifty-seven years, had been troubled with a marked case of eczema for a number of years. Her chest, back, arms, and thighs, as well as abdomen and breasts, had been the seat of a most intensely itching papular eczema for years. Her forearms and legs were affected with the squamous form of the same disease, the folds of the elbows and the popliteal spaces presenting marked fissures. Constipation which existed was relieved by the acid aperient mixture, and an antipruritic lotion followed by a menthol ointment partially relieved the patient. After a time the condition remained *in statu quo.* As no improvement would appear, she was placed on ten-drop doses of mercauro three times a day, and the dose increased until she took twenty drops at a dose. Improvement was noticeable to such a degree that in one month no traces of the eczema appeared. She was continued on the remedy for two weeks longer, and has continued well ever since, a period of about four months.

Case VIII.—Mr. C. H., an old gentleman of eighty-two years, was troubled with marked eczema of a squamous nature localized upon the backs of his hands. Being placed upon the same treatment as Case VII, much more rapid results were observed. He has had numerous relapses, however, due to the fact that he will handle mortar and similar irritating substances, including frequent washing of the hands. A strict adherence to injunctions, however, is always followed by a rapid return to the normal. Of course, water externally is always prohibited in these cases of eczema.

Case IX.—Mr. A. F., a young man of thirty-two years, applied for treatment for undefined pains in the head and swellings of the forefinger and thumb of the right hand, on the left ramus of the jaw, and over the right clavicle. He had contracted syphilis some five years before. He was given mercauro in fifteen-drop doses, to be increased five drops every week until thirty drops were taken thrice daily, or until vertigo declared itself, when the remedy was to be discontinued for a time. Marked effects for the better declared themselves long before the thirty-drop doses were taken. These latter had to be discontinued after a week on account of the vertigo which declared itself. The swellings, however, had gone down, the backache and headache had disappeared, and the patient slept quietly and was refreshed, something he had not known for a year previously. He resumed the treatment after a rest of two weeks and feels strong and buoyant instead of weak and melancholic.

Case X.—Mr. O. W., a married man of forty-three years, contracted syphilis about two years and a half ago. The condition remained unrecognized for about six months. He then applied to me for treatment. His symptoms disappeared rapidly under active mercurial treatment, followed by the mixed. I lost sight of him for about a year, when he applied for the relief of a bursa of the left knee which had been cut open by a surgeon. It returned, and he was advised an elastic knee cap and placed upon mercauro in twenty-drop doses three times a day. The bursa gradually reduced, and the patient, deeming the elastic bandage sufficient, discarded the medicine. The effusion began increasing and he quickly resumed the mercauro, and I had the satisfaction of observing the effusion entirely disappear. This patient indulged in increased doses which brought on vertigo. This symptom disappeared, however, upon resuming the original quantity. So far as any other syphilitic symptoms are concerned, they are not evident, and the patient feels both cheerful and contented.

These cases have been roughly outlined so as not to weary the reader. They are what might be called sample cases from a large number of similar ones which have terminated favorably under the influence of the gold preparations mentioned. One feature which has been particularly noticed in connection with mercauro is its marked aphrodisiac properties. While only male patients have mentioned this, no doubt the female ones experienced similar sensations or exhilaration. This latter has been alluded to by a number of patients of both sexes. There is no doubt in my mind that the bromide of gold is the most efficient salt of the metal, and it appears to exercise a twofold effect therapeutically—viz., it increases the action of the arsenic and mercury with which it is combined, and at the same time it seems to prevent the manifestation of toxic symptoms. It is itself very efficient, if we are to believe competent authority, which states positively that bromide of gold is thirty times as efficient as the other bromides.

So far as the preparations mentioned are concerned, they are efficient and rapid in action and the manifest effects of the gold are evident. An exact dosage by means of measuring the drops is attained and ease of administration is secured, no disturbance of the stomach resulting from their ingestion. The vertigo which is experienced disappears as soon as the dose is diminished. I have had no occasion to observe aurism up to the present. In fact, I have seen none but the good effects of these gold preparations. One point, however, must always be borne in mind. The indications presented must be such as demand gold. Some of the older writers maintained that gold was the remedy for syphilis, whereas it is only in the later and deeper manifestations that its good effects are shown. Furthermore, gold and its preparations will not have good effects in all skin diseases, but will prove a most valuable adjuvant in such as have a distinct neurotic base as an ætiological or complicating factor.

It is the hope of the writer that the few clinical notes jotted down above may serve as a stimulus to further inquiry into the therapeutical worth and more extended application of gold and its salts, as it is a matter of interest and possibly of the greatest importance, more especially in the treatment of many chronic affections of viscera and organs.

WHAT IS TUBERCULIN?

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This is the title of an open letter by Professor Charles Denison, of Denver, Col., published in the *Colorado Climatologist*, November 15, 1894.

In a personal letter received from Dr. Denison, on the 13th inst., he requests me to reply to the letter, and I am the more glad to comply with this request, inasmuch as I am able to join with my own the views of Professor Edwin Klebs, who is at present my guest.

In his open letter Dr. Denison objects to the statement from another source, that tuberculin is identical with poisonous products resulting from tubercular processes within the living organism, and also to the consideration of tuberculin as a toxine or a toxalbumin, and he bases his objections upon the favorable clinical results which he and others have obtained from its therapeutical application. These results, he maintains, justify the belief that the remedy is an antitoxine, and capable of producing a certain degree of immunity when properly applied in suitably selected cases.

Dr. Denison wants answers to two questions; first, Is tuberculin a toxine or antitoxine? Second, How is it made? And he wants answers either from Professor Koch himself or from some one who is thoroughly acquainted with this subject.

Before considering these questions, I desire to refer to the subject of bacterio-therapeutics in general.

The foundation principle of bacterio-therapeutics is the self-limitation of the diseases produced by pathogenic germs, and the shorter or longer immunity to reinfection after recovery.

This principle finds partial elucidation in the fact that in artificial cultures of such bacteria a similar limitation is observed, and that the cultures after a time cease to grow and finally die out, long before the nutrient substances contained therein are exhausted.

The additional observation that such culture fluids, when the germs are filtered off, act germicidal to the particular species, whereas other specific forms grow and multiply freely upon the exhausted culture fluids, justifies the belief that this germicidal property belongs to the vegetation or rather secretion products of the particular kind, and that, the same as in man, these excrementitious substances are poisonous to their producers.

The immunity from recurrence of the same disease is more difficult to explain; but it is assumed that either through the products formed by the bacteria, or from their disintegration within the organism, the tissues of the previously infected organism become so modified that for a time their growth and multiplication are no longer possible, or that the organism tolerates the poisons which the bacteria produce, and thus the germs, although present, do not occasion the symptoms of the specific disease. Much may be urged for and against either of these theories; the fact remains that a greater or less degree of immunity as a rule results, and may be artificially produced.

There can be no doubt that the substances which destroy the disease germs, or which confer immunity directly or indirectly, are contained either in the bacteria or in their secretion products, and, so far as we approach a perfect condition of virulency and favorable growth of the germs outside of the living organism, we may hope to obtain these substances from their artificial cultures.

It is well known that guinea-pigs are highly susceptible to tuberculosis; when they are inoculated with virulent cultures and with sufficient numbers of the germs the disease follows a rapid, definite, and fatal course. In Koch's experiments, made upon animals inoculated from the same culture, and with like quantities, the disease was allowed to develop to its unmistakable recognition; then certain of the animals were treated with tuberculin, while others for control were kept under the same conditions without treatment. In these control animals the disease pursued its usual fatal course, whereas the treated animals again improved, and outlived the control animals by considerable periods; some finally succumbed to the disease in the end, others were killed for examination, after various periods of treatment, and in the latter the evidences of previously present but healed tubercular lesions were unmistakably demonstrated, although more recent processes pointed also to the fact that the old lesions were not all entirely recovered from.

Professor Klebs took up this experimental work in guinea-pigs immediately after the announcement of tuberculin and carried it much further, and he has also shown that in guinea-pigs treated with tuberculin previous to tubercular infection the disease followed a much slower course, and that the tubercular lesions produced by inoculation had undergone retrogressive changes and in some cases entire cure.

So far as guinea-pigs are concerned, Professor Koch, and more particularly Professor Klebs, have proved beyond controversy that tuberculin has a curative influence, and the latter has also proved that it confers a certain degree of immunity, varying according to the time for which the treatment was carried out and the amount of tuberculin used.

The unexpected toxic effect of large doses of tuberculin in the human subject at once limited its use for the treatment of human tuberculosis, and, while guinea-pigs bore doses of several hundred milligrammes and improved under them, disaster followed from much smaller doses in man; and persistence in the use of large and evidently poisonous doses for therapeutical purposes brought the remedy into discredit, as it was not supposed that doses much smaller than necessary for the curative effect in guinea-pigs could be of value in the treatment of the human subject.

There were, however, conservative men among the profession who, appreciating the unmistakably favorable influence of the remedy upon the animal, and recognizing that, despite the disasters in many instances, it acted curatively in man also, looked for a safe method of application by reducing the doses to such as showed no toxic effect whatever, and who, under careful selection of cases, hoped to still take advantage of the curative properties. Their results justified their faith. For myself, I can say that I have so applied the remedy for three years and a half, and that I have every reason to be satisfied with the results I have obtained, while, with the exception of my first few weeks of experience, I have never observed a single instance, in over twenty thousand injections since made, where the remedy acted detrimentally or produced undesirable symptoms or discomfort in my patients.

Tuberculin was not all one could desire, but it was a help—indeed, an important one—and, never having had faith in panaceas, nor ever expecting that we should get them, I was glad of the addition to my resources, hoping that something better might come in the future.

In the meantime Professor Klebs and others undertook further experiments with the view of improving tuberculin by eliminating its toxic properties, the former devoting his entire time and energy to the subject.

Those interested will find a full account of the course of his investigations in his work on tuberculosis; my space will only permit me to mention that he found tuberculin to contain alkaloids soluble in alcohol; toxines, or toxalbumins, precipitated by sodic iodide of bismuth; while another albuminous substance, a sozalbumin, was found in the alcohol precipitate. All these substances were separated and tried upon guinea-pigs and other animals, and it was found that to the alkaloids were due the depressing and injurious effects upon the heart; to the toxalbumins, the fever, malaise, and inflammatory effects; while the sozalbumin was free from these properties. With the latter substance, now called antiphthisin, Professor Klebs has cured guinea-pigs entirely, and kept others alive for long periods, while the control animals perished under the usual course and manifestations of tuberculosis and in the usual short periods of time.

In the human subject its application in doses up to several thousand times greater than permissible of tuberculin has produced no depressing effect upon the heart, no fever or inflammatory symptoms, and no other undesirable effects, while it has shown the same favorable curative influence as upon guinea-pigs, and under proportionally larger doses to a much greater degree than had been obtained from the use of tuberculin.

It still remains to be shown what the effects are of the substances contained in the bodies of the bacilli of tuberculosis, and highly interesting and probably important results may be looked for from this line of experimentation, which Professor Klebs began in the past year and is now pursuing further in the laboratory of this institution.

When these experiments are concluded we shall have each substance contained in tuberculin in an isolated form, and, so far as they are available for therapeutic purposes, we shall be able to use them separately or in various combinations, according to the nature and particular indication of a given case.

Antiphthisin is unquestionably the germicidal part of tuberculin; it is obtained from the culture fluid from which the germs are previously filtered out; it is therefore a secretion and excretion product of the germ.

To answer Dr. Denison's question more directly, I would reply that tuberculin appears to be a complex substance containing toxines, toxalbumins, and germicides (sozalbumins), as well as alkaloids (ptomaines ?).

As to its manufacture, it is very simple and as follows: The ripe culture (*i. e.*, one which has reached its limitation of growth) is sterilized, then evaporated upon the water bath, reduced to one tenth the original amount, and then filtered.

In this connection a prevalent error should be corrected. At the time of its introduction it was erroneously believed that what was then called Koch's lymph, and subsequently tuberculin, was prepared under the control and auspices of the German Government, and was given to the world without profit, the amount paid, however, going into the hands of the government and not into those of Professor Koch and his associates. Professor Klebs informs me now that this has never been the case. The laboratory in the Lüneburger Strasse, in Berlin, where the remedy was prepared from the beginning, under the direction of Dr. Libbertz, was an entirely private enterprise of Professor Koch's, in which Professor Pfuhl, Dr. Libbertz, and possibly some others, had an interest, and to these gentlemen resulted the profits. Later the laboratory was transferred to the Farbwerke of Meister Lucius and Bruning in Höchst-am-Main, where Dr. Libbertz has charge yet, and where the remedy is made for the benefit of those interested.

It is remarkable that the price for tuberculin of five marks a cubic centimetre in Germany and two dollars a cubic centimetre in this country is still maintained, whereas Professor Klebs has reduced the price of the much more expensive purified preparation to one quarter of this amount, and contemplates still further reductions, as the facilities for its production are being increased and improved.

If we now consider the clinical aspect of tuberculin and its purified derivative (antiphthisin, Klebs), we can readily see that the great obstacle to the free use of the former for therapeutic purposes is the presence of the toxalbumins and alkaloids, these substances being highly poisonous in minute doses and producing the often described fever, malaise, nausea, diarrhœa, general aching, depression, and disturbances of the heart and circulation. To introduce considerable and distinctly effective quantities of the associated sozalbumin, or germicidal substance, we would have to give doses otherwise seriously detrimental, if not fatal, to the human subject.

Animals seem to have a greater toleration for toxalbumins and alkaloids, and hence their greater toleration for tuberculin to a degree that quick and curative effects followed its use in their treatment. In the human subject by very gradually increasing doses a certain toleration can be established.

Under such gradual increase good results followed, especially in cases in which the disease was not very active nor following a rapid course; therefore in the early stage and in non-febrile advanced-stage cases we had the best results. These cases allowed of sufficient time to obtain a gradually increasing tolerance, but they also suffered acute exacerbations when the remedy was injudiciously pushed to larger doses. At best, the treatment had to be continued for a long time, and required such circumspection and watchfulness that I was never willing to administer tuberculin except to patients living in my own house and under my constant observation. I am still gratified with my results, and observe with much satisfaction that they have been quite uniformly maintained after the patients were discharged and had returned to their previous places of residence and mode of life. The remarkable absence of relapses would speak for a certain degree of immunity produced by the remedy.

In 1891 and 1892, when Professor Klebs first introduced a purified product of tuberculin under the name of tuberculocidin, I treated a series of cases with this substance and reported my results in the *New York Medical Journal* for 1892. I was then well convinced of the germicidal properties of tuberculocidin, but the price, three dollars a cubic centimetre, was practically prohibitive in view of the large doses required. The trial came to an abrupt termination by the destruction of my institution by fire in August, 1892.

In the early part of this year tuberculocidin was again made use of on two patients who proved entirely intolerant to even the minutest doses of tuberculin, and failed to show any improvement—one after three and the other after seven months' residence in my institution. All other means having been exhausted, I resorted to tuberculocidin, and with very satisfactory results. Improvement became evident after only a few weeks' use of the remedy, and both patients progressed so satisfactorily that other patients, observing the remarkable results, insisted upon being treated with it also. Both of these first patients made an entirely satisfactory recovery and have remained well. In addition to these two between fifty and sixty other patients have been treated, and since July antiphthisin has been used instead of tuberculocidin. The results obtained have been highly satisfactory, and will be reported in the future. At this time most of these patients are still under treatment, and with the exception of two, very far advanced and hopeless, who received the remedy at their own urgent request, we have witnessed improvement in various directions, clearly attributable to the antiphthisin in every case.

Three early-stage patients have been discharged apparently cured; at the time of their discharge all consolidation distinguishable by percussion had disappeared. The respiratory sounds were clearly vesicular, and the patients declared that they felt as well as ever.

Quite a number of more advanced-stage patients have also been allowed to return home, with instructions to return for further treatment if symptoms should again return, the disease appearing entirely arrested and the general health restored.

The observations of a favorable character which appear to me partly or entirely due to antiphthisin are as follows:

1. In all cases treated the fever became less as the doses were increased. In the earlier stages the fever subsided entirely and did not return. In the advanced stages, where septic and other complications were present, while the temperature diminished, it did not disappear entirely until the complications were also controlled.

2. In early-stage cases the cough and expectoration were favorably influenced at an early period of the treatment, and disappeared entirely as the treatment was continued. This is also true of night sweats.

3. The appetite and nutrition improved in proportion to the reduction of fever.

4. Degeneration (granular, club forms, and fragmentation) of the tubercle bacilli was constantly observed in all cases treated. The tubercle bacilli diminished steadily in number in the total quantity examined (one cubic millimetre homogeneous sputum), and finally disappeared entirely. In more advanced cases, where large cavities were present, while the degeneration and diminution in number were also observed, their entire disappearance from the globular sputum (from a cavity) has thus far only occurred in a few cases treated a longer time, but in non-globular sputum the degeneration and disappearance of the bacilli occurred the same as in early-stage cases.*

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* The longer continuance of tubercle bacilli in sputum from cavities Professor Klebs explains by the fact that the remedy can not reach them as readily there. In the cavity the tubercle bacillus grows more rapidly upon the solid, cheesy, degenerated walls, and upon the dead tissues lining them, which are cut off from the circulation. Only after such cavities have become clean and the walls have become vascular will the tubercle bacilli be accessible to germicidal influence through the blood.

In a considerable number of patients previous and repeated sputum examinations were available for comparison.

5. Remarkable changes have been observed upon physical examination, consisting in unmistakable clearing up of percussion dullness and return of a vesicular quality of respiration in the cleared up area. I can truthfully say that I have never seen such changes in so short a time. In several instances the previous dullness gave place to a deep, low note, with evidences of emphysema. I have not failed in a single instance to observe such local improvement over more or less extensive areas, and explain this by the absorption of tubercular tissue and of inflammatory exudates from the acini and alveoli of the lung, which is perhaps confirmed by the fact that the vital lung capacity was increased in reasonable proportion. Such patients, before the physical examination was made, stated that their breathing was freer, and that their shortness of breath upon exercise had certainly improved.

6. An almost uniform statement by patients of the benefit they themselves became aware of, especially as to easier and freer breathing, increased sense of strength and well-being, better appetite, less fever, less cough and expectoration, and better sleep.

7. The improvement observed by me in temperature, pulse, respiration, and by physical examination, and the subjective sense of improvement by the patients themselves, was obtained in comparatively short periods of time, usually beginning within the first three or four weeks, and such improvements were the more rapid when large doses were administered.

8. When the remedy was locally applied to tubercular ulcerations, the latter became clean and showed a tendency to heal, and in some cases treated for from several weeks to several months such ulcerations have healed and remain so to this time.

So far, then, my own experience confirms what Professor Klebs has alleged for antiphthisin as being specific and germicidal against the *Bacillus tuberculosis*, under the degeneration and disappearance of which the tubercular process undergoes retrogressive changes by the conversion of living tubercle cells into such as those from which they have proliferated.

Such action, however, also indicates the limitation of the remedy. As it is a specific germicide, we can not expect it to control the conditions resulting from associated pathogenic germs of, for instance, the *Streptococcus pyocyaneus*, diplococcus, etc., nor can we expect to remove with it the symptoms and degenerative processes indirectly due to them, or to the tubercle bacillus. Antiphthisin must therefore not be expected to control septic processes, fatty or amyloid degeneration, nor reach the tubercle bacillus in dead tissues or localities not accessible to the circulation or to local applications.

These limitations must be clearly borne in mind in its application and in the expectation from its action.

In my endeavors for furthering the successful treatment of tuberculosis, and in my observations upon tuberculin and antiphthisin, I have ever been governed by the desire to find the truth. My convictions have justified me in inviting Professor Klebs to come to this country to aid me with his experience and advice. Since his arrival I have been able to induce him to associate himself with me in my work, with which he has been pleased to express his great satisfaction.

Tuberculin and antiphthisin will hereafter be produced here in our bacterio-therapeutic laboratory, which is now nearly ready for operation. Of this Professor Klebs will have exclusive charge, while he will also act as consulting physician to the sanitarium. The first experimental labor upon animals in the new laboratory will be in the direction of producing immunity to tubercular infection, and to determine in what part of the culture of the bacillus the immunity-producing substance is contained. Investigations will also be made as to the associated pathogenic germs in pulmonary tuberculosis, and especially in advanced cases with cavity. After their relation to the course and symptoms of the disease has been determined, efforts will be made to find in their culture products the proper remedy for their successful removal.

The results of these labors will be made known to the profession by frequent communications by Professor Klebs. For the present antiphthisin will not be given to the ordinary channels of trade. On the contrary, as it is appreciated that for the successful treatment of tuberculosis something more than the ability to give a hypodermic injection is required, a course will be offered in which full instruction will be given to members of the profession. The course will include bacteriology, pathology, physical diagnosis, and the general management and care as well as the specific treatment of tuberculosis.

To physicians of known ability in this field of labor, and to institutions where a scientific trial of the remedy is assured, antiphthisin will be furnished directly from the laboratory, and until its value is fully established it will not be given out in a general way; but special application for particular cases will be considered, and, so far as from the limited amount available it is possible to do so, the remedy will be furnished for such cases also.

As to the directions for the use of antiphthisin, it may be said that the same must be considered a germicidal product obtained from the culture fluid of the tubercle bacilli from which the toxalbumins and alkaloids have been removed by the method mentioned in a previous part of this paper. It is only recommended for use in the earlier stages of tuberculosis, and must not be expected to relieve complications, especially not those which are produced by other pathogenic germs, notably such as produce suppuration and septic fever. The remedy can only act upon living tubercular tissue and upon the tubercle bacilli which are within reach of the circulation. The more vascular the part the more rapid and distinct appears its specific effect. It must, however, be remembered that when a large number of tubercle bacilli are destroyed and a considerable quantity of tubercular tissue is being absorbed, toxic products the same as are contained in the unpurified culture fluids may thus be liberated within the organism which may give rise to aching, malaise, fever, and congestion of tubercular areas.

It is therefore best, except in the most urgent cases, to begin with the remedy in comparatively small doses, and to increase it gradually, thus avoiding effects which, although not at all dangerous, may give rise to alarm and anxiety both on the part of the physician using the remedy and of the patient.

Should such an effect nevertheless occur, the remedy may be intermitted for two or three days, until the effect has entirely subsided, to be then resumed with about half the previous dose administered, and the increase continued the same as before. Under the more cautious procedure the beginning dose for an adult is a tenth of one cubic centimetre of the ten-times concentrated solution, and this dose is increased by a tenth of a cubic centimetre a day until one cubic centimetre is reached. The latter may be repeated for several days, and the increase thereafter may be more rapid, by half a cubic centimetre at a time, repeating each such dose three or four times, or even a week, according to the effect produced.

Antiphthisin is non-poisonous and produces no symptoms unless such as may be caused by too rapid destruction of bacilli and absorption of their products. At present the maximum dose that has been reached is ten cubic centimetres a day, and when doses larger than one cubic centimetre are reached it is recommended to divide the dose, giving one half in the forenoon and the other half in the evening.

If the remedy produces local irritation at the point of injection, or when larger doses than one cubic centimetre are administered, the rectal method should be adopted, which consists in introducing the remedy, diluted with a small quantity of distilled water, with a small sterilized rectal syringe into the rectum. The great vascularity of the latter part causes more rapid absorption of the remedy, and observations thus far justify the belief that such administration is even more effective than the hypodermic method.

Intravenous injections are more effective still, and much smaller doses are required.

After a hundred cubic centimetres of the remedy have been used the question should be determined whether an intermission of some weeks or months should not be allowed, or the treatment stopped entirely. The entire and repeated absence of the tubercle bacillus in the expectoration, together with a corresponding amount of improvement, general and local, and the absence of all fever, would justify such a course.

The fever due to the tubercular processes will be found to disappear gradually when large doses of the remedy (from two to five cubic centimetres) are reached.

The present cost of antiphthisin is fifty cents a cubic centimetre, in phials of ten, fifty, and a hundred cubic centimetres, the amount for which, to save labor, must accompany the order. It is not intended to make the laboratory a source of personal gain; on the contrary, the object is to produce the remedy at so low a cost that the same will eventually be within the reach of the poor, which will be possible when the demand justifies its preparation upon a large scale.

The Winyah Sanitarium, *January 5, 1895.*

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, FEBRUARY 2, 1895.

A DOUBTFUL CASE OF SYPHILIS.

The occasional difficulty of diagnosticating the initial lesion of syphilis with certainty was notably illustrated at a meeting of the French Society of Dermatology and Syphilography on the 13th of December, at which M. DuCastel showed a girl, between fifteen and sixteen years old, who was the subject of an ulcer which he called a gigantic syphilitic chancre. It was about two inches long and an inch wide and situated on the inner aspect of the right thigh, extending to the verge of the anus. It was shallow, rather reddish in color, but not presenting the redness characteristic of certain syphilitic ulcerations. It furnished an abundant purulent secretion, with which a small quantity of blood was frequently mingled. On its surface there were to be seen a few islets covered with epithelium, which seemed to be the starting points of the process of cicatrization. The edges of the ulcer were festooned with little indentations; they were not elevated, not rising perpendicularly to the general surface, and not undermined. The ulcer rested on an indurated base of cartilaginous hardness at least a third of an inch in thickness. The lymphatic glands situated beneath the fold of the right groin were considerably enlarged and presented an indolent mass of woody hardness. The ulceration had started between four and five months before, and the glandular enlargement dated from about the same time. M. DuCastel said that he thought this ulcer was a gigantic syphilitic chancre. He then recited the considerations which had led him to exclude simple chancre, tuberculous ulceration, and hereditary syphilis. He remarked that there was one objection that might be brought against this diagnosis, and that was that thus far there had been no secondary eruption; the only manifestation that might be taken for one of constitutional syphilis was the occurrence of attacks of headache, which, however, had not been intense. The patient denied any act that might have been capable of giving rise to inoculation.

The foregoing is a summary of the account given in the report of the meeting published in the December number of the *Annales de dermatologie et de syphiligraphie*, which also gives an account of the discussion. M. Fournier thought that the case was truly extraordinary, but, while the ulcer seemed to him to have all the objective characters of a syphilitic chancre, he would not regard the diagnosis as established until there had been a further evolution of the disease. M. Tennesson had no doubt as to the diagnosis of chancre. The president, M. Besnier, remarked that the diagnosis of chancre was not supported by the fact that four months had elapsed since the appearance of the lesion, which was now in the stage of full development. M. Darier said that in doubtful cases the microscope was of no assistance, and he added that the fact that the inguinal glands formed a compact mass, instead of being isolated, was not in favor of syphilis. To this M. Fournier replied that such a condition constituted the conglomerate bubo of Bassereau, which was occasionally seen in syphilis, and M. Besnier added that at that time he had three syphilitic patients under observation each of whom showed a conglomerate bubo of the epitrochlear region.

THE LION FROM A MEDICAL POINT OF VIEW.

The president of the Bristol Medico-chirurgical Society, A. J. Harrison, M. B., delivered before that society on October 10th a very interesting address founded on his experience in the gardens of the Clifton Zoological Society, with which he has been connected for many years. It appears in full in the current number of the *Bristol Medico-chirurgical Journal.* The experiences and observations mentioned in the address are not arranged in any formal anatomical, physiological, or pathological order, as the author states, but, fragmentary and disjointed as they are, they are exceedingly interesting. The first case mentioned is that of a lion, considered to be the finest lion in Europe at the time, and one that had always seemed in excellent health until a few months before his death. One morning he was found dead in his cage, and at the post-mortem examination it was ascertained that an enormous hæmorrhage had taken place into the abdominal cavity, proceeding from the spleen, which organ, it was inferred, had been ruptured by the exertion of coitus. The splenic enlargement, says Dr. Harrison, seemed to have been caused by hyperæmia and increase in the lymphatic and vascular elements, but as to the ætiology, he can only speculate. "Are lions," he asks, "subject to malarious attacks? and had Hannibal been a victim in the days of his youth, in his native wilds—for he was forest-bred—before the civilization of captivity had fallen upon him? He had been ill a couple of months or so before his death, when his breathing was affected. Did he have pneumonia then, with carnification of the base of the right lung—or perhaps more probably a hæmorrhage from an embolism—or are lions subject to splenic fever?"

Another lion, a fine creature, had become lame by reason of an ingrowing claw. The trouble went on from bad to worse until something had to be done, and it was decided to extract the claw. The use of chloroform, says Dr. Harrison, was out of the question, for attempts to give these animals anæsthetics have been worse than failures; so it was decided to resort to the "cramp-cage." With some difficulty the animal was got into this cage. "He didn't like his quarters," the account goes on to say, "and showed that even within the comparatively small dimensions he could turn round and so evade any efforts to get hold of his claw. Planks of deal, one foot broad by one and a half inches thick, were then put into the cage to limit the space. The animal was fairly furious before; but now came such a display of rage that no one who did not see it could imagine it. He fought for dear life, as he thought. Plank after plank was seized and ripped up like so much match-wood, and it seemed as if the iron bars and plates, strong as they were, would not contain the infuriated beast. His mouth bled, and he broke a tooth. Several of the keepers stood on the top of the cage to prevent it from being overturned, and some of the spectators took refuge by quietly withdrawing from the scene. At length, by putting in plank after plank, above and behind, the poor brute was brought to bay, and, to save himself from his very constrained position, pushed out his paws through the bars of the cage. 'Now's your time,' I said. Blunsden immediately seized the offending claw with a pair of strong carpenter's pincers; the grip was good. The animal helped in the operation by trying his best to get his paw free, and the claw came away. It had grown into the flesh at least half an inch, most likely more; and here I can show you the very thing. In half an hour afterward the creature had quite calmed down: he seemed then to have comprehended the rationale of the operation, and he gave me the conviction that if he had had to undergo a repetition he would have been a mild consenting party. The operation was completely and permanently successful."

The case of another lion is mentioned, one only four months and a half old, that was found dead in its cage. It had been ailing for three or four days; its breathing was very quick and it took no food, but simply lapped a little water. At the post-mortem examination the pericardium was found distended with a semi-purulent fluid, of the consistence of gruel, tinged somewhat with blood. Notwithstanding the tradition that in old times, when lions used to be kept in the Tower of London, the lion named Pompey is said to have lived there for seventy years, Dr. Harrison says he can not believe the story. He looks upon the lion, at least in captivity, as comparatively a short-lived animal, and gives various facts on which he founds this opinion. So decided is he that in the case of a lion that died at the age of sixteen years his conclusion was that the beast's death had been owing to senile decay. The death of a lioness, described as "rather rickety," is recorded as having taken place during parturition, from rupture of the right cornu of the uterus. The animal had been in labor for five days, and one cub had been born and the other was partly extruded into the vagina.

Dr. Harrison's address deals with pathological and physiological observations on various other animals, but the space at our disposal has allowed only of our referring to those of them that relate to lions.

MINOR PARAGRAPHS.

CONSUMPTION AS AN INFECTIOUS DISEASE.

While we earnestly hope that much good may come of the practice entered upon by our city board of health of presenting tuberculosis before the public in the light of an infectious disease, we fear that hardship, if not actual suffering, may thereby become the lot of many a poor consumptive. Many sanitarians are urging the need of putting consumptives under the control of sanitary officials. That course, it is to be feared, would result in such a popular dread of taking the infection as to realize the grim forecast made by Dr. H. Bennet, quoted in a vigorous article entitled The Consumption Scare, by Dr. Arthur Ransome, professor of public health in Owens College, published in the January number of the *Medical Chronicle*, of Manchester, England. Dr. Bennet says: "Social relations would be all but disorganized; a consumptive patient would be considered like a leper in olden days, one to be separated from his family, to be isolated, shut up. He would have to live months—nay, years—in a tent; his clothes should be destroyed, and whether he dies or recovers, the house which he has inhabited should be burned. It would, perhaps, be a charity to mankind to kill him at once, like an animal attacked with rinderpest; for, as the duration of the ordinary forms of phthisis may extend over years, during that period every time he breathed he would be filling the atmosphere with the germs of disease, wafted by the winds to be scattered far and near." To this Dr. Ransome adds: "Such is the logical sequel of the doctrine of the contagion of phthisis, carried to an extreme as it is now being carried by many, especially in Germany and France. The result of such teaching as I have described is already becoming apparent in many directions. Persons affected with almost any chest disease find it difficult to obtain places as domestic servants. The close ties of family affection are not always strong enough to induce relatives of consumptives to undertake what is considered to be the dangerous duty of nursing them. The sites for consumption hospitals are becoming as difficult to find as those for fever, and utterly unfounded reports as to the spread of the disease by such institutions are recklessly made, even by medical officers of health."

THE CHARTER OF THE NEW YORK HOSPITAL.

This ancient document, granted in 1771 by George III, of England, has been in great danger of irretrievable ruin, but fortunately it has now been restored and so cared for as practically to insure its perpetual preservation. Its dilapidation was so pronounced but lately that great apprehension was felt by the governors of the hospital lest some further accident might complete its destruction. Various New York professional restorers were asked to bring their art to bear upon it, but they all averred that its restoration was beyond their powers. It happened at last, however, that the excellent work of that sort done by Mr. Emery, of Taunton, Mass., came to the governors' knowledge, and he, having been invited to New York to inspect the document, expressed himself confident of his ability to perform the task of rescuing it from decay. He has succeeded admirably, and on Tuesday of this week the old charter, still showing signs of age, it is true, but smooth and perfectly legible, was hung in the hospital library. The charter embraces three large sheets of parchment, and the writing on each of them is close. The seal, about three inches across and half an inch thick, hung originally by a ribbon piercing the three sheets of parchment. As the charter is now displayed, the sheets are placed in proper order in a long frame, each in its own compartment and each compartment closed by a glass door which is kept locked. The seal, mounted on the top of the trilocular frame, is ensconced in a little revolving frame of its own, so that either of its sides may be inspected. The general appearance of the charter is exceedingly creditable to Mr. Emery's skill and judgment. If the courts will henceforth refrain from hurling *duce tecums* at it, the venerable document may last indefinitely.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending January 29, 1895:

DISEASES.	Week ending Jan. 22.		Week ending Jan. 29.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	6	1	13	4
Scarlet fever	83	11	108	14
Cerebro-spinal meningitis	0	0	4	3
Measles	79	5	52	4
Diphtheria	208	24	198	41
Small-pox	3	0	2	1
Tuberculosis	122	96	105	121

Behring's Diphtheria Antitoxine. — Last week we answered a correspondent to the effect that we had no trustworthy information that this antitoxine could be bought in this country at present. We have since been informed by Messrs. Schulze-Berge & Koechl, of No. 79 Murray Street, New York, that they are prepared to furnish it; indeed, their advertisement to that effect in our own columns would have so informed us had we not overlooked it.

Harvard Medical Society of New York City.—At the annual meeting, held on January 26th at Harvard House, the following officers were elected for 1895: President, Dr. Dillon Brown; vice-president, Dr. Charles L. Gibson; secretary, Dr. Theodore Dunham; treasurer, Dr. George E. Brewer.

The Buffalo Academy of Medicine.—Meetings of the Sections in Surgery, in Medicine, in Pathology, and in Gynæcology and Obstetrics are held monthly, on successive Tuesdays, at the academy's rooms, Market Arcade, at 8.30 p. m. General meetings of the academy are held in September, December, March, and June.

A Curious Example of Frenchified English is to be found in the January number of the *Archives de neurologie*, in an abstract of an article that appeared in the *American Journal of Insanity*. Such names as *Dakota du Sud*, *Virginie de l'Ouest*, and *Nouveau Jersey* are not particularly remarkable, but when it comes to *Nouveau Foundland* the matter becomes a trifle comical.

The Late Dr. Loomis's Will.—It is announced that by the will of the late Dr. Alfred L. Loomis the Loomis Laboratory is to receive the sum of $25,000, and the New York Academy of Medicine the sum of $10,000, the latter to be known as the Loomis Entertainment Fund, a fund that has been much needed by the academy.

The Richmond, Va., Academy of Medicine and Surgery.—The next meeting will be held on the evening of Tuesday, the 5th inst. A discussion on the treatment of gout and the uric-acid diathesis with be opened by Dr. Landon B. Edwards.

Change of Address.—Dr. Carter S. Cole, to No. 101 West Seventy-fourth Street, New York.

Society Meetings for the Coming Week:

Monday, *February 4th:* New York Academy of Sciences (Section in Biology); Morrisania Medical Society, New York (private); German Medical Society of the City of New York; Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

Tuesday, *February 5th:* Medical Society of the State of New York (first day—Albany); New York Obstetrical Society (private); New York Neurological Society; Buffalo, N. Y., Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Society of the County of Cattaraugus (quarterly), N. Y.; Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., Medical Association (Lewiston); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore).

Wednesday, *February 6th:* Medical Society of the State of New York (second day); New York Academy of Medicine (Section in Public Health); Society of Alumni of Bellevue Hospital, New York; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

Thursday, *February 7th:* Medical Society of the State of New York (third day); New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

Friday, *February 8th:* Yorkville Medical Association, New York (private); Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

Saturday, *February 9th:* Obstetrical Society of Boston (private).

Answers to Correspondents:

No. 431.—Write to the secretary of the board, Albany, N. Y.

Births, Marriages, and Deaths.

Died.

Eaton.—In Denver, on Saturday, January 12th, Dr. John M. Eaton.

Jones.—In Vicksburg, Miss., on Saturday, January 19th, Dr. Reid Jones, formerly of Grand Lake, Ark.

Kelly.—In New Orleans, on Thursday, January 24th, Dr. A. W. Kelly, formerly of Penn Yan, N. Y., aged fifty-six years.

Ostrander.—In Brooklyn, on Tuesday, January 29th, Dr. Ferdinand W. Ostrander, in his ninety-first year.

Whitney.—In Pawtucket, R. I., on Thursday, January 24th, Dr. James Orne Whitney, in his seventy-third year.

Letters to the Editor.

POTASSIUM PERMANGANATE AS AN ANTIDOTE.

355 Boulevard, West, New York, *January 15, 1895.*

To the Editor of the New York Medical Journal:

Sir: In the *Annual of the Universal Medical Sciences* for 1894, under the heading Phosphorus, it is stated that the best antidote in phosphorus poisoning is permanganate of potassium. Having made with the latter extensive studies for the past two years, I have become quite familiar with its mode of reaction toward different organic and inorganic bodies, and I am obliged to say that it has absolutely no antidotal virtues *per se* against phosphorus, for not even contact of these two substances lasting sixteen hours will result in any mutual reaction. I have traced the above-mentioned statement that the permanganate is the best antidote to phosphorus to the original article on the subject embodying the experiments made by Dr. Antal, of Budapest. The author says: "My experiments in regard to phosphorus poisoning were made at first on rabbits; these animals are not suitable for such researches, for their stomachs contain food even after a day's fast, and these matters reduce the permanganate before the latter has time to act upon phosphorus." Thus we see that Dr. Antal himself makes it a condition *sine qua non* that the animal's stomach must be empty if permanganate is to have any effect upon phosphorus; no wonder that this is the case in view of the fact that the permanganate has practically no effect at all upon phosphorus, as it requires such a long time for any chemical reaction to take place between the two substances. In connection with this it might be interesting to mention that peroxide of hydrogen does not oxidize phosphorus at all, although the latter is so readily oxidized by the atmospheric air (see Dr. Kastenbine's article in the *Louisville Medical Monthly* for July). In fact, permanganate of potassium and peroxide of hydrogen, far from being antidotes to phosphorus, constitute a chemical curiosity in regard to their behavior to phosphorus, which is oxidized so remarkably slowly by these powerful and ready yielders of oxygen. It is no wonder that the author of the article in the *Annual of the Medical Sciences* advises the administration of the potassium salt before the phosphorus becomes absorbed, since "vomiting will generally prevent a chemical reaction." Thus we have two conditions which are requisite in order that the permanganate shall have any antidotal action to phosphorus: First, the patient's stomach must contain only phosphorus and no organic matter; second, the patient must be forbidden to vomit the permanganate solution which has been administered.

Allow me to cite you one of Dr. Antal's experiments. This author soaked a thousand phosphorus matches in a litre of milk for twenty-four hours. In his first experiment he gave to a dog weighing twenty-five kilogrammes one hundred and eighty cubic centimetres (six ounces) of the poisonous milk, and then he administered to the animal two litres—*i. e.*, half a gallon (!)—of a 0·15-per-cent. solution of permanganate containing forty-five grains of this substance. The dog survived, but I should think that half a gallon and six ounces of liquid pumped into a fifty-pound animal's stomach would be sufficient to flush and wash out his whole digestive tract. Besides this enormous quantity of liquid, forty-five grains of permanganate, after having been reduced to hydrated manganese dioxide, forms an immense quantity of a muddy substance which would carry off everything before it and thus would act as a mechanical antidote just as animal charcoal does. The other experiments are similar—that is, very large amounts of liquid and permanganate and the poison given on an empty stomach.

The first condition for permanganate of potassium to act as an antidote to any toxic substance is that it should act instantaneously upon the poison, else it would be unreasonable to administer it, not knowing the amount of organic material present in the patient's stomach at a given moment. The simplest test will convince anybody that atropine, hyoscyamine, hyoscine, cocaine, aconitine, veratrine, pilocarpine, muscarine, and caffeine are not decomposed by potassium permanganate, even after having been in contact with the latter for many hours; furthermore, that the permanganate will give up its oxygen much quicker to albuminous matter than to strychnine, oxalic acid, colchicum preparations, or hydrocyanic acid. On the other hand, the potassium salt of permanganic acid instantaneously decomposes morphine and eserine, being capable of selecting these two last alkaloids from among other organic matter, like albumin and peptone, that happen to be present, *and therefore is a positive antidote to opium and calabar bean.*

I might also add that it instantaneously oxidizes cyanide of potassium, as has been shown by Dr. Kossa, of Budapest, but acts too slowly upon hydrocyanic acid to be relied upon as an antidote to the latter. William Moor, M. D.

FEES FOR LIFE-INSURANCE EXAMINATIONS.

Buffalo, N. Y., *January 26, 1895.*

To the Editor of the New York Medical Journal:

Sir: The medical examiners of the New York Life Insurance Company have received an insulting letter which begins as follows:

"Dear Doctor: We have just received instructions from the president to make an arrangement with our examiners in large cities by which the fee for medical examinations shall hereafter be three (3) instead of five (5) dollars. The considerations which have led up to this conclusion are that the company has in the past placed in your hands a considerable amount of business, and that, should you accept the proposed terms, it is its intention to continue to give you as much business, if not more, than heretofore. The company feels that it stands in the same relation toward you that a patient stands in toward his attending physician. A physician charges five (5) dollars a visit for occasional visits, when he would hardly feel warranted in charging so large a fee for regular medical services extending over a considerable length of time. In the latter case it certainly is the uniform custom among physicians in making out their bills to make considerable reductions from the fee for a single visit on account of the number of those visits."

The letter continues, saying in polite language that you may accept the new arrangement or resign, and is signed by one of the assistant medical directors.

It is evident that the management is trying to make a good showing in the reduction of expenses and has taken a very poor method of accomplishing its object. Only a third or fourth rate man would make examinations at the absurd fee that they suggest. Instead of reducing the fees for medical examiners it would be much better to increase them to that extent that it would be worth the while of thoroughly competent men to make careful and complete examinations. A truly thorough examination would require two days—a half hour for the physical examination and another half hour (twenty-four hours later) for the complete examination of the twenty-four hours' excretion of urine.

A good example of the incompleteness of the ordinary life-insurance examination came under my observation only last week. A gentleman had been accepted for a large amount of insurance by one of the large New York companies. A single sample of his urine had been examined. Three days later he consulted me, as he was not feeling very well. It is not necessary to go into details, but a careful physical examination of the chest revealed a heart which had no valvular murmurs, it is true, but whose first sound was to its second as about 1 to 2 instead of 5 to 3, and had lost its muscular tone entirely. The twenty-four-hours' urine revealed no albumin or sugar, but the amount of urine and of urea were about half what they should have been.

The examination made in this case was certainly a five-dollar, probably a ten-dollar examination.

If that is the sort of work that the companies are getting at their present fees, what can they expect if they reduce the fee to the paltry sum of three dollars?

The following letter which I have sent to the company explains my position in the matter, and I trust you will publish it entire:

"*New York Life Insurance Company,*
"*A. Huntington, M. D., Medical Director.*

"Dear Doctor: Permit me to announce my resignation as a medical examiner for the New York Life Insurance Company. At the same time permit me to say that I should think that you, as a medical man, would be ashamed to countenance any such letter as has just been sent out by Dr. Rogers, assistant medical director. You know perfectly well that no physician of any standing whatever would give even to a member of one of his regular families an examination, such as is required by a life insurance company, for less than *ten* dollars, and that examinations are made for insurance companies at the five-dollar rate because of the amount of business they are supposed to send to the examiner.

"Long ago I tendered my resignation to your company because, as I said at the time, it was not worth my while to go to an applicant's office or house to examine him for less than ten dollars, but that if the agent cared to bring one to my office *during office hours*, I would examine him at the five-dollar rate.

"At that time you asked me, as a favor, to allow my name to remain among those of your examiners, and I did so. Now, however, the mere fact that the medical department should allow such a proposition as has just been made to receive its sanction renders it impossible that I should allow my name to remain any longer as one of its medical examiners."

DeLancey Rochester, M. D.

Proceedings of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Eighth Annual Meeting, held in Washington, May 29, 30 and 31, and June 1, 1894.

The President, Dr. George Chismore, of San Francisco, in the Chair.

(*Continued from vol. lx, page 827.*)

Exfoliation of the Mucous and Submucous Coats of the Bladder, Preceded by Renal and Vesical Calculus.—Dr. Alexander W. Stein, of New York, read a paper on this subject. He first referred to the fact that exfoliations of the mucous membrane might occur from the uterus, vagina, larynx, and other mucous tracts. That complete exfoliation of the mucous membrane of the bladder might occur had been repeatedly denied, and that quite recently, although there were at least fifty cases of this kind on record. Some of the text-books, it was true, mentioned a diphtheritic and croupous cystitis, but with these conditions the cases collated had nothing in common. Not only had the entire mucous membrane exfoliated *en masse*, but portions of the muscular coat had come away as well. In one case the entire mucous coat had been shed in the form of a sac, and after an interval of some days a portion of the muscular tunic had been cast off separately. The real question at issue, therefore, was not whether exfoliation of the bladder occurred, but how it occurred. Reasoning from analogy, we inferred that when a mucous membrane was subjected to prolonged or intense irritation, as after the employment of powerful urethral injections or the presence of ammoniacal urine in the bladder, the vitality of the epithelium became modified, and its exfoliation was favored. The chief ætiological factor in almost all the cases appeared to be retention of urine. Of the fifty cases that had been reported, forty-five had been in females and five in males. In all of the former the retention had been due to a retroverted gravid uterus, or else the pressure of the child's head in prolonged labor. The cast-off shreds usually had a gritty feel and were covered with a phosphatic deposit. The prognosis in women was good. The exfoliated membrane was often expelled *per urethram*, *en masse*, and so ended the trouble. Of the forty-five women, nine had died, and the fatal termination had not been altogether attributable to the vesical lesion. In men the reverse was the case. Two of the five patients had died. The prognosis in men was not so good, because the conditions which gave rise to the exfoliation were in themselves grave, independent of the bladder trouble. Complete recovery occurred in some of the most unpromising cases, but there was apt to remain for a time disturbance of co-ordination between the retentive and the expulsive forces of the bladder. The author then gave the history of a case of this kind that had come under his observation, and exhibited some of the shreds passed by the patient.

A Plea for the Excision of the Initial Lesion of Syphilis.—A paper on this subject by Dr. Edmund E. King, of Toronto, Canada, was read by the secretary. The author stated that, while the specific microbe of syphilis had not yet been isolated, it was almost beyond doubt that the disease was caused by a specific germ. In all germ diseases there was a period of incubation of variable length. In a good many the effect of the germ was self-limited, while in others it was continuous. That mild cases of these diseases occurred proved either that a smaller dose of the germ had been administered, or that the soil was not properly suitable for its growth, or that both these conditions existed together. In all cases we had a period of incubation, one of exacerbation, and one of recrudescence. The intensity of secondary syphilis had been held to be in direct proportion to the extent of the initial lesion; this the author said he had corroborated, and he had further demonstrated clearly to himself that it was also in direct proportion to the time that the initial lesion had existed. He did not think it was possible by any known means to abort syphilis once the germ in sufficient quantity had entered the general system, but that the course of the disease could be greatly modified by limiting the amount of the poison which entered the economy. Excision had been useful in other diseases where fatal results followed the introduction of a poison when neglected—for instance, death from rabies and from the bite of a cobra had been prevented by free and early excision. So with syphilis, if it was possible to see the lesion during the first few hours of its existence and to excise it at once, the disease might be aborted. Even with the ameliorating results, the patients should not be allowed to be careless about internal treatment.

Among the cases reported in which the author had performed early excision of the initial lesion was the following: A man had noticed a slight crack on the free border of the prepuce. Fifteen days previously he had had intercourse with a woman of the town who "had had a skin disease on her body." This woman, on examination, had been found to be suffering from a syphilitic eruption and from mucous patches on the vulva. The lesion on the man's penis had been immediately excised under antiseptic precautions and the edges of the wound had been brought together with fine silk. Since that time (June, 1893) he had presented no further symptoms of syphilis. In six other cases reported by the author the history and results had been much the same.

Epithelioma of the Penis.—Dr. Edward Martin, of Philadelphia, read a paper on this subject. After detailing the histories of a number of cases of this affection, the author stated that one of the most interesting points in connection with the subject was the ætiology of the disease. Phimosis was almost universally acknowledged to be a strong predisposing factor, and in six of the seven cases which he had seen this condition had been present. Traumatism was usually recognized as a predisposing factor. Direct contagion was generally denied, although thirteen such cases were on record, eight of them being instances of contagion from the wife to the husband. Syphilis had been repeatedly quoted as a predisposing factor in the development of cancer. This ground was scarcely tenable, and was certainly not generally accepted, though Demarquay had collected ten cases in which the patients had suffered from syphilis. Two such cases had come under the author's observation.

As to the prognosis of epithelioma of the penis, accurate knowledge of the percentage of recurrences after thorough extirpation could scarcely be obtained, since there was a natural tendency to report only those cases which were successful or which presented certain peculiarities. In performing the operation we could arrive at a very clear idea as to the chance of radical cure in individual cases by careful microscopical examination of the parts removed. When the penis was amputated, cross-sections should be taken at the seat of the amputation, and these should be carefully examined for cancerous infiltration. Similar examinations should be made of the entire periphery of the growth. Even though these sections showed healthy tissue, this, of course, did not guard against glandular recurrence. In all cases where amputation of the penis was required, the groin should be opened freely and the entire chain of lymphatic glands removed, whether they were enlarged or not.

Dr. Taylor said that epithelioma of the penis occurring in syphilitic subjects was probably a coincidence, as we usually saw it after the syphilitic processes had ceased.

Dr. Lewis said that in cases where amputation of the penis was performed removal of the testes had also been advocated, on the theory that, if they were left, the rubbing of the clothing against the stump of the penis produced a certain amount of erethism and increased the supply of blood to the parts, thus favoring recurrence.

Inflammation of the Seminal Vesicles.—Dr. Robert W. Taylor, of New York, read a paper with this title. This affection might be acute or chronic. The acute form had many points of analogy with epididymitis. Both affections were almost always secondary to gonorrhœa, occurring in the third or fourth week, or to hyperæmia of the posterior urethra due to masturbation and venereal excesses, or to inflammation of this region resulting from traumatism, catheterism, endoscopy, or strong injections. The symptoms of the acute form were quite similar to those of posterior urethritis and to those given as diagnostic of the several varieties of prostatitis. The patient first experienced pain, either of a dull or throbbing character, or a sensation of weight, which he referred to the deep portion of the pelvis just within the anus, or at the neck of the bladder, or in the perinæum. There was marked increased frequency in urination and tenesmus; sometimes mild, again quite decided, and in some cases very severe. As the bladder filled, the painful symptoms increased in severity, and there might be pain at the end and sometimes at the root of the penis. There might be fever, chills, and malaise. All these symptoms might be present in posterior urethritis, so that the crucial test in diagnosis was palpation of the prostate and seminal vesicles by means of the finger in the rectum. If the case was one of acute posterior urethritis, the prostate would be tender, even painful on pressure, and perhaps swollen. If gonocystitis was present and explored for early, one or both vesicles would be found to be much enlarged in all directions in the shape of a distended leech, hot, brawny, and exquisitely tender. Defecation was very painful and perhaps complicated with rectal tenesmus, and might be attended with vesical spasms; sleep was heavy and unrefreshing, and often during the night painful erections, perhaps bloody, might add to the patient's sufferings. In a few days the swelling might still further increase, and then moderate fluctuation might be felt.

The chronic form might result from the non-occurrence of resolution in the acute affection, and in this form the clinical history was tolerably clear and striking. But in the majority of cases it began as a low-grade inflammatory process in persons, particularly of neurotic type, who might suffer from chronic or subacute posterior urethritis or chronic prostatitis, in confirmed masturbators, in those given to excessive venery, and in alcoholics.

In the acute form of this trouble resolution usually took place. In the chronic form amelioration and cure might be obtained. In some cases, however, the morbid process went on to the formation of large tumors, which required operative interference.

When it was recognized in the acute stage, gonocystitis was to be treated on the general principles which governed the management of all phlegmasiæ of the genital and urinary organs. A good plan was to apply a large number of leeches upon the perinæum and the margin of the anus. Injections of cold water might be used, and the rectum might be packed with ice if the procedure was pleasant to the patient. Opium in suppositories, diluents, and saline cathartics might be administered as required. Should an abscess form, it might be reached by means of a long incision in the perinæum, just anterior to the anus. The resulting cavity should be treated on general surgical principles. When the abscess was not large, but well defined, it could be aspirated through the rectum. In more acute and extensive abscesses, free incision through the rectal wall, followed by careful antiseptic packing, had been recommended.

In the treatment of the chronic form, in which we might find distended, pouchy vesicles, much stress had recently been laid by Dr. E. Fuller upon what he termed stripping or milking the vesicles with the finger tip, which was inserted into the rectum. The author said it was no easy matter in many cases to reach the vesicles with the finger, and to clearly define their size and shape. Moreover, the seminal vesicles were made up of blind-ended tubes or diverticula, and for anatomical reasons it would clearly be seen that the utmost that could be accomplished by stripping or milking a vesicle was to act upon about a quarter of its whole structure. The author said he had no doubt that the ampullation of the vas deferens which was so common near the prostate had often been mistaken for enlargement of the seminal vesicles.

Dr. Gardner W. Allen said that in the cases that had come under his observation the symptoms had not been characteristic, and a diagnosis could be made only by a rectal examination. In these cases he thought he had succeeded in reducing the size of the organs by pressure with the finger tip exerted through the rectum.

Dr. Martin expressed the opinion that in comparatively few cases of epididymitis was there any evidence of swelling of the seminal vesicles. In healthy men he had not been able to locate the vesicles at all.

Dr. George E. Brewer, of New York, mentioned frequent ejaculation on very slight provocation as a symptom of the chronic form. In spite of Dr. Taylor's demonstration, he thought it possible to express some of the contents of these overdistended sacs by pressure through the rectum.

Dr. James R. Hayden, of New York, said that his attempts at milking or stripping the seminal vesicles had proved very unsatisfactory.

Dr. Bangs referred to the difficulty he had had in outlining the seminal vesicles, excepting in chronic cases. In some instances, by making pressure through the rectum, he had been able to express a fluid which had contained spermatic elements; whether this had come from the ampullated part of the vas or from the vesicles themselves he did not know.

Dr. Robert F. Weir, of New York, described a method of opening abscesses of the seminal vesicles through the perinæum He stated that in a number of instances he had removed the vesicles for tubercular disease, together with the testis and vas deferens.

Dr. Belfield called attention to the fact that the sinus pocularis, when distended, formed a swelling in the region of the seminal vesicles.

Dr. Bryson said that chronic inflammation of the vesicles might be mistaken for tubercular inflammation.

Dr. Taylor said that when the seminal vesicles were inflamed and distended, severe pressure in that region was apt to produce rupture of their walls. In the majority of cases it was probably the ampulla that was manipulated through the rectum, and not the vesicles themselves.

(*To be concluded.*)

Book Notices.

Fibroid Diseases of the Lung. Including Fibroid Phthisis. By Sir Andrew Clark, Bart., M. D., LL. D., F. R. S., W. J. Hadley, M. D. (Dur.), M. R. C. P., and Arnold Chaplin, M. D. (Cantab.), M. R. C. P. London: Charles Griffin & Co., 1894.

This posthumous work of one of the most learned, brilliant, and respected of English physicians will be welcomed by all who had learned to appreciate his learning, diagnostic ability, and great clinical acumen, as well as his wide culture and amiability.

It passes into the group of the British medical classics with such companions as the works of Sir Thomas Watson, Sir Dominick Corrigan, Graves, and Walshe, and the illustrative productions of Carswell and Sibson.

The plates depicting the gross pathological anatomy of the various forms of pulmonary fibrosis are very skillfully drawn, and colored with such a fine taste as to give the reader an idea of the appearances which can scarcely fail to guide him aright in the post-mortem examination of such a case.

The clinical pictures, too, are, some of them, comparable to those of Dr. Graves, who, in the writer's estimation, was *facile princeps* in the art of skillful delineation of symptomatic groups and the indication of their diagnostic bearings.

The introductory is one of the neatest, most skillfully arranged, and most pleasingly enunciated of all the preliminary historical summaries with which we are acquainted. Written by the collaborators, it gives us a brief, concise, but accurate account of the development of our knowledge of the subject. Beginning with Bayle and Laennec, and progressively stating and interpreting the views of Andral, Chomel, Stokes, Corrigan, Broussais, Graves, Addison, Grisolle, Rokitansky, and Hasse, it brings us to Handfield Jones and Hughes Bennett. Dr. Sutton, whose name is now so frequently associated with that of Sir William Gull on account of their joint labors on arterio-capillary fibrosis, advanced the view that the fibroid diseases of the lung were local manifestations of a constitutional degenerative condition, the caseous nodules being due to what Virchow would call a necrobiotic change arising from malnutrition. And so the discussion continued until the lamented Sir Andrew Clark, in 1868, reported a single case of what we should denominate fibroid phthisis. There are evidences here of an imperfect faculty of accurate observation, as he remarks, for instance, that there were "signs of consolidation and excavation at the left base, with contraction of the chest, the heart being displaced upward and outward, and uncovered." But the description of the post-mortem changes scarcely bears this out. "The left lung was contracted, universally adherent, and the pleura much thickened, presenting both old and recent adhesions. Fibroid sæpta were found traversing the lung in all directions, but chiefly following the course of the bronchi and blood-vessels, and running from the thickened pleura," etc. This, with a few further remarks, bear evidence of careful examination, but the reviewer would not regard them as conditions which would in any but a small proportion of cases occasion the physical signs of consolidation and excavation. It has been his experience, which includes many cases in which the examination during life has been compared with the post-mortem appearances, that a lung in the condition described has given, as a rule, almost an absence of respiratory sounds, except on very vigorous breathing, when some faint bronchial breathing was to be heard; was dull, but not flat, on percussion, and that the vocal resonance was slight. We must admit, however, that these signs, taken together with the others mentioned, would be sufficient for an expert like Sir Andrew Clark.

A notable omission is the failure to speak of the clubbed fingers, which are so highly developed in this condition that they are often noticed by non-professional persons.

It is a question, too, whether Sir Andrew did not lay too much stress on the cardiac displacement. While contraction of the thorax, especially when it is unilateral, would seem necessarily to displace the heart, yet it not infrequently occurs that the accompanying pericarditis fixes the organ and prevents the dislocation.

But these slight criticisms, if justified, indicate only a few small spots on the sun.

This most interesting historical account of a new disease reviews next the work of Wilson Fox, of Charlton Bastian, and of Jürgensen, who did so much to make popular the term *interstitial pneumonia*.

He and Cohnheim also popularized the rational explanation of bronchiectasis.

Douglass Powell and Walshe are given their due, and then we are introduced to the man who, the reviewer believes, will outrank them all in the annals of fame—a man of prodigious learning, of seemingly infallible judgment, of wonderful clinical skill, who was taken off before his time and left his book, the monumental labor of his life, to which he had devoted his best powers for ten years, to be finished by his friend Dr. Pye Smith. Hilton Fagge had, indeed, a worthy editor for his great work, but it was a sorrowful task, no doubt.

With our limited space we have thought it better to give a simple description of the introductory part of the book. The illustrations are beautiful, and as a whole this small volume makes a capital monument to Sir Andrew Clark. Its readers should feel greatly indebted to his collaborators and editors.

A Monograph on Diseases of the Breast. Their Pathology and Treatment, with Special Reference to Cancer. By W. Roger Williams, F. R. C. S.; late Surgeon, Western General Dispensary, and Surgical Registrar, Middlesex Hospital. With Seventy-six Figures. London: John Bale & Sons, 1894. Pp. vii–572. [Price, 21*s*.]

The author first reviews the ontogeny and phylogeny of the breast, and describes the morphology and secretory anomalies of these glands. He then refers to unilateral and bilateral amazia, to micromazia, to athelia, and to atrophomazia. As regards the last-named, he holds that when the essential sexual organs are removed early in life, before the secondary sexual characteristics have become thoroughly well established, these latter remain undeveloped, though when the removal of these organs is deferred until the secondary sexual characteristics have become well established, the latter generally persist. This view, of course, is nothing new.

The author considers that the fact that additional mammary structures in polymastia do not develop in any but certain definite positions, that correspond with those occupied normally by the glands of polymastic animals, warrants us in attributing their occurrence to reversion. From the cases of polymastia reported he concludes that our remote progenitors had at least seven pairs of mammæ on the ventral aspect of the trunk; of the six lost pairs, three were situated above and external to, and three below and internal to, the present pair. To carry out this reasoning a little further, it would seem from the fact that among the recorded cases of *mammæ erraticæ* are a number of instances of median breast that the author's heptamastiac woman was the specialized descendant of a polymastiac female who was correctly depicted in the ancient statue of Diana of Ephesus.

Hypertrophy of the breasts he considers to be either diffuse or circumscribed, and generally associated with menstrual deficiencies and pregnancy. Gynæcomastia is attributed to the principle of correlated variability and the doctrine of the latent hermaphroditism of every human being.

Pathological neoplastic processes of the breast are explained as aberrant repetitions of normal developmental processes. The author considers that the evidence is against a specific cancer microbe. The term cancer is restricted to a malignant neoplasm of epithelial origin. The morphology of the primary neoplasm in mammary cancer, and the lymphatic or the general dissemination subsequent thereto, are described with a completeness that leaves nothing to be desired.

From an analysis of a large number of cases of cancer affecting all parts of the body, the author concludes that the greater liability of women to cancer is not the outcome of any general constitutional condition correlated with sex, but is due to biological peculiarities inherent in the reproductive organs themselves. He finds that the average age of women at the onset of mammary cancer is forty-eight years, whereas for uterine cancer it is forty-four.

After detailing the geographical pathology and the heredity features of cancer, the author concludes that if unchecked that disease will ere long become one of the commonest diseases of humanity. He concludes that most cancer patients are the surviving members of tubercular families, and, as we know that tuberculosis is increasing, there may be some ground for this assumption.

While admitting that it is possible for benign neoplasms to take on malignant characters late in life, the author does not believe that such neoplasms are specially prone to develop malignant disease.

Regarding the benefit of operative procedures, the author has found that complete cures may be expected after thorough operations for cancer of the breast in at least fifteen per cent. of all cases, while mammary cancer left to itself inevitably ends in death.

Attention is directed to the fact that under the term villous cancer two perfectly distinct neoplasms have been included—non-malignant villous papilloma and malignant tubular cancer. An interesting chapter is that on the rare cancer of the mammary integument.

While the author finds that cancer of the breast in men may originate either from the acini, from the ducts, or from the integument, yet cylinder-celled duct cancers are more frequent than among women.

An analysis of 13,824 primary neoplasms shows that there were 1,081 sarcomata, and of these only 99—5 in men and 94 in women—affected the breast. Of 2,397 consecutive neoplasms of the breast in women, 77·7 per cent. were cancers, while 3·9 per cent. were sarcomata, an evidence of the greater stability of the parablastic as compared with the archiblastic elements of the gland. In the series referred to there were but two examples of myxoma.

Fibroma, fibro-adenoma, lipoma, chondroma, osteoma, angeioma, cystic disease, and cysts of the breasts in the two sexes are given due consideration.

The chapter on inflammation and suppuration is an interesting one.

The author maintains, on the evidence afforded by recent investigations, that all forms of mammary inflammation, with the possible exception of erysipelas, are consequent on the presence of irritant substances of microbic origin within the ducts.

The author has studied his topic with great care and thoroughness, and it is not too much to say that there is no monograph on the subject of diseases of the breast that is superior to this.

Schwund und Regeneration des elastischen Gewebes der Haut unter verschiedenen pathologischen Verhältnissen. I. von KURT PASSARGE, Königsberg i. Pr. II. von Dr. RUD. KRÖSING, Stettin. Hamburg und Leipzig: Leopold Voss, 1894. [Price, 4 *Mk.*]

THIS work gives a very comprehensive description of the atrophy and regeneration of the elastic tissue of the skin under various pathological conditions. The authors find that the elastic tissue disappears in all inflammations and neoplastic formations in proportion to the intensity of the pathological process. Infiltration is particularly inimical to the elastic tissue. Degeneration is manifested by a loss of the staining power and a thickening of the fiber with eventual molecular degeneration.

The work is illustrated with photomicrographs of sections of syphilitic papules, of papulo-squamous eczema, of chancroid, of leprous tubercle, and of molluscum contagiosum.

This study is an interesting contribution to the scanty literature of the subject.

Text-book of Medical and Pharmaceutical Chemistry. By ELIAS H. BARTLEY, B. S., M. D., Professor of Chemistry and Toxicology in Long Island College Hospital, etc. Third Edition, revised and enlarged. With Eighty-four Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. xiv–9 to 684. [Price, $3.]

THE result of the second revision of Dr. Bartley's work is to give us a most excellent text-book upon medical chemistry. It is written, as the author frankly states, for the student, and is largely a compilation, but it is certainly a good one. The addition to this edition of a chapter on physiological and clinical chemistry, "which deals with the chemistry of nutrition, foods, digestion, milk, and the urine," is one of the best features of the volume.

La Chimie de la cellule vivante. Par ARMAND GAUTIER, membre de l'Institut, professeur à la Faculté de médecine de Paris. Paris: G. Masson, 1894. Pp. 5 to 174. [Prix, 2 *fr.*] [*Encyclopédie scientifique des aide-mémoire.*]

THE many contributions that the author of this work has made to our scientific literature have made his name as familiar among Americans as among Europeans.

In this volume Professor Gautier describes the cell and the rôle of its various parts, and shows that organism in action. He then reviews the phenomena of assimilation and of disassimilation, and he concludes that the direct products of the disassimilation of proteid matters result fundamentally from a splitting up of elements and not from oxidation. These products are peptones, toxines, and toxalbumins, diastatic ferments, amide bodies, leucomaines, and ptomaines. He divides leucomaines into four classes—neurinic, creatinic, xanthic, and undetermined leucomaines.

The function that preserves the cell and makes it a complete being is fully analyzed in this volume, which modifies the generally accepted physiological theories decidedly.

The Jewish Method of Slaughter compared with Other Methods from the Humanitarian, Hygienic, and Economic Points of View. By J. A. DEMBO, M. D., Physician to the Alexander Hospital, St. Petersburg, etc. Translated from the German with the Author's Amendments. Published by the Trustees of the Late J. A. Franklin. London: Kegan Paul, Trench, Trübner & Co., 1894. Pp. xiv–111.

THE author of this work presents good evidence that the Jewish method of slaughter, the "schecheta," is a humane method because loss of consciousness and insensibility take place more quickly with it than with other methods of killing animals. He states that the cut with the extremely sharp and smooth-edged knife is entirely painless, as there are few sensitive nerves encountered in the neck.

This method has an advantage from the hygienic point of view, because there is a copious and rapid escape of blood, and the epileptoid convulsions that appear toward the end of the bleeding cause the development of lactic acid in the body of the slaughtered animal, and that combines with potassium phosphate and transforms it into potassium tartrate and dihydrogen potassium phosphate. This latter salt impedes the development of micro-organisms and the formation of cadaveric alkaloids. The author considers that the convulsions render the meat tenderer.

The book seems to be the outcome of a report of a German society for the protection of animals that condemned the Jewish method of killing as barbarous.

Statistique et observations de chirurgie hospitalière. Par le Dr POLAILLON, chirurgien de l'Hôtel-Dieu, etc. Paris: Octave Doin, 1894. Pp. vii–9 to 413.

THIS is the first volume of a series that the author intends to publish for the purpose of presenting the results of his surgical work from the time he began his service in the Pitié hospital, in 1879, up to the present day. The first chapters of the volume represent his practice during his early days, and as time advanced and he adopted newer or better methods, their results are to be outlined in the later volumes.

This volume is devoted exclusively to the statistics of surgical injuries of the lower extremities. More or less extended observations are given of 2,404 traumatic lesions in which there were 2,364 cases of recovery or improvement and 40 deaths, and of 2,345 organic affections, in which there were 2,274 cases of recovery or improvement and 71 deaths. In 1,026 operations on the soft parts or the bones of the lower extremities there were 56 deaths.

The volume is an interesting record of surgical achievement.

Trattato di patologia speciale medica e terapia ad uso degli studenti e dei medici. Pel Dott. Temistocle Santopadre. Vol. I. Sezione I. Malattie infettive esantematiche. Ferrara: Bresciani, 1894. Pp. 54.

This is the first fasciculus of the first volume of a work on practice that is intended to be a concise manual for students and practitioners.

The first volume is devoted to infectious diseases, and in this fasciculus there is a satisfactory *résumé* of the history, ætiology, pathology, symptoms, and treatment of measles and scarlet fever. From the references in the text it is apparent that the author has studied his topics in the medical literature of the world, and the volume is likely to prove a useful contribution to Italian medical literature.

BOOKS, ETC., RECEIVED.

A Manual of Organic Materia Medica and Pharmacognosy. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs. Comprising the Botanical and Physical Characteristics, Source, Constituents, and Pharmacopœial Preparations, with Chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. By Lucius E. Sayre, Dean of the School of Pharmacy, etc. With 543 Illustrations, the Majority of which are from Original Drawings. Philadelphia: P. Blakiston, Son, & Co., 1895. Pp. xx–17 to 555 [Price, $4.50.]

Hypnotism: How it is Done: Its Uses and Dangers. By James R. Cocke, M. D. Boston: Arena Publishing Co., 1895. Pp. 4–5 to 373.

Methods of Operating for Cataract and Secondary Impairments of Vision, with the Results of Five Hundred Cases. By Surgeon-Captain G. H. Fink, Her Majesty's Indian Medical Service. With Illustrations. London: J. & A. Churchill, 1894. Pp. 5 to 77. [Price, 5*s*.]

Defective Speech and Deafness. By Lillie Eginton Warren. New York: Edgar S. Werner, 1895. Pp. 5 to 116.

Blood Serum Therapy and Antitoxines. By Georg E. Krieger, M. D., Surgeon to the Chicago Hospital, etc. With Illustrations. Chicago: E. H. Colgrove & Co., 1895. Pp. 5 to 68. [Price, $1.]

The Home Treatment of Hay Fever. By A. L. Hall, M. D., Fair Haven, N. Y. [Reprinted from the *Buffalo Medical and Surgical Journal.*]

On the Different Types of Respiration in Man and Woman. By Jakob Bolin, M. D. [Reprinted from the *Posse Gymnasium Journal.*]

Astigmatism as a Factor in the Causation of Myopia. By Leartus Connor, M. D. [Reprinted from the *American Lancet.*]

A Surgical Kit containing all the Essentials for Aseptic Operations at Private Residences. By Reuben Peterson, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Lues Venerea. By Henry A. Robbins, M. D. [Reprinted from the *Virginia Medical Monthly.*]

Flies and Cholera Diffusion. By Surgeon-Major R. Macrae, Civil Service of Gaya. [Reprinted from the *Indian Medical Gazette.*]

On the Relation of Urea to Epilepsy. By J. Nelson Teeter, M. D. [Reprinted from the *American Journal of Insanity.*]

Ether Anæsthesia: Clinical Notes on Three Hundred Cases. By S. Gordon Campbell, M. D., Montreal. [Reprinted from the *Annals of Surgery.*]

Operative Treatment of Myofibroma Uteri. By N. Senn, M. D., Chicago. [Reprinted from the *Chicago Medical Record.*]

Report of the Health Department of the City and County of San Francisco for the Fiscal Year ending June 30, 1894.

Thirteenth Annual Report of the Hospital for Women and Children, Newark, N. J. December, 1894.

Annual Report of the Board of Visitors to the United States Military Academy for the Year 1894.

The Third Annual Report of the Sheppard Asylum, 1895.

New Inventions, etc.

A NEW PHOROMETRIC TABLE-BRACKET.

By Isaac C. Soulé, Ph. D., M. D.,

FREEPORT, ILL.

When in March of the present year Dr. J. F. Herbert gave to the profession the description of his new adjustable phorometric bracket, I thought that he had accomplished that for which I had been striving for the past two or three years, to wit, the elimination of some of the trials to which the oculist (and I might say his patient as well) is every day subjected. It is not necessary to enumerate this list, so often gone over; every oculist is perfectly familiar with its varied forms; so I will not take up time, but hasten on to the immediate subject of this short paper.

First, before giving the description of my own instrument, allow me to refer briefly to that of Dr. Herbert.

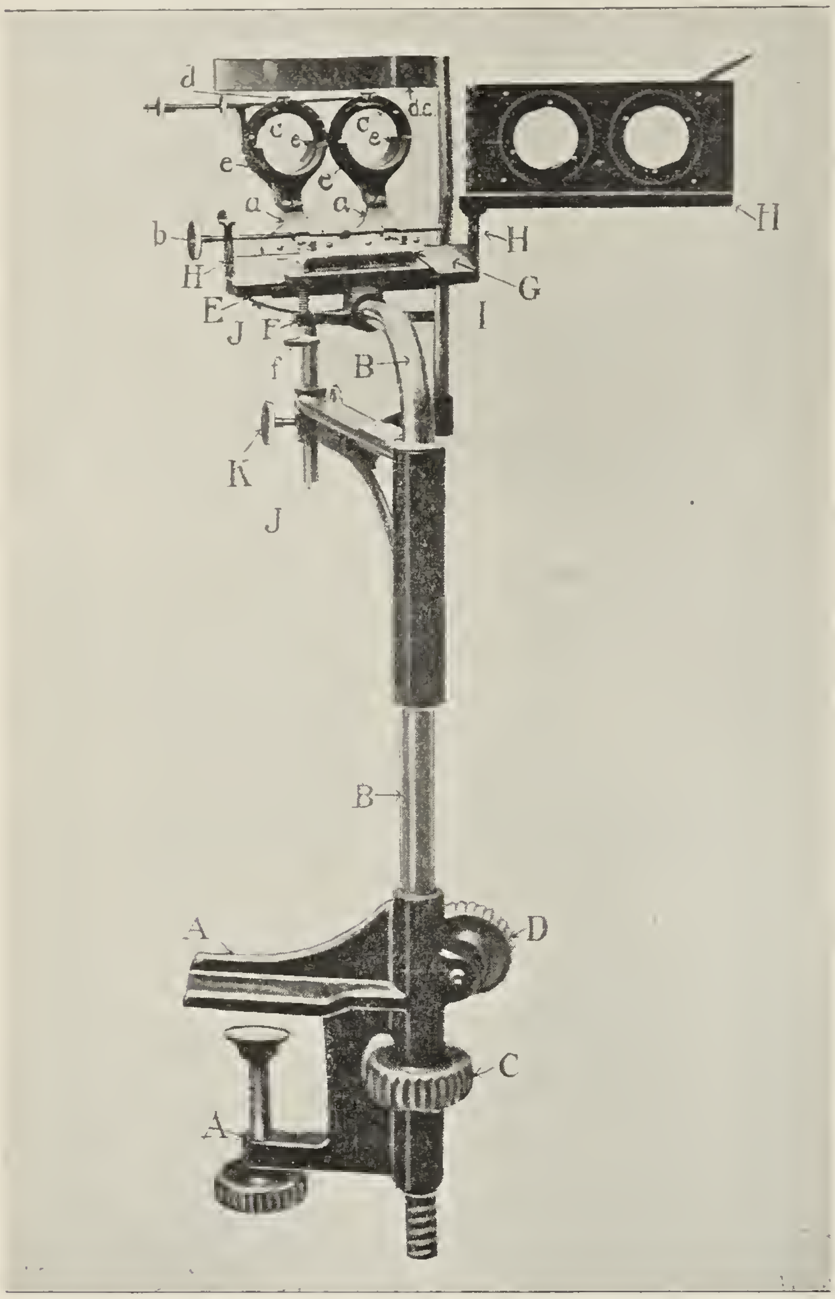
This is truly an excellent instrument, a long step forward in the right direction, and while it obviates the trouble we at times have in adjusting the trial frame to the patient's face, on account of lack of symmetry, removes the weight of which the patient so frequently complains, secures greater rigidity, and otherwise gives us numerous advantages over the frame, it seems to me, from a trial of it, that the doctor has failed to accomplish a part of his desideratum, and that the bracket has some disadvantages as great as its advantages. After first satisfying myself of this, I determined to complete my own instrument, hoping to accomplish more fully that for which Dr. Herbert was striving.

I call my instrument an adjustable phorometric table-bracket, as by so doing its general character is at once made apparent.

Fastened to the edge of a table (which for the sake of rigidity should be screwed firmly to the floor) is the combination clamp A, extending upward, from which is a bar B, curved at its upper extremity, forming the main support for the instrument.

The lower end of this bar B fits into a double socket in A and has a deep, fast thread upon which works a coarsely knurled nut C, by means of which B is easily and quickly raised and lowered.

Thus adjusting the instrument to different heights, the upper socket in A is slit and has working in it a binding screw D, which converts it into a strong clamp, holding B perfectly secure and rigid at any angle or elevation. Fastened to the upper curved end of B are two heavy brass plates; one, E, is movable and is the base plate to which is securely fastened at an angle of forty degrees a plate or bar G, upon which slide the lens carriers. These lens carriers *a a* are two broad, strong, supports, so fastened to their supporting bar as to have a large bearing, in that way assuring to them rigidity and preventing a binding in approximation and separation, which is accomplished by a right and left threaded rod *b*. Working in the lens carriers *a a* are the revolving cells *c c*, which have cut on their posterior edges a deep gear into which works a worm, *d d*, by means of which they may be revolved in either direction. Attached to the carriers *a a* are four cells, *e e e e*, those in front capable of containing two lenses, those in rear three, and slotted so as to permit of the revolving of a lens. Securely fastened to the bar G (which supports the lens-carriers), at either end are upright supports, H H, to one of which the phorometric slide is so attached as to permit of its being swung to one side out of the way; the other one acting merely as a support to the other end, holding the slide always parallel with the supporting plate and lens holders. Keyed to the supporting bar B is another plate, F, in which works a thumbscrew, *f*, by means of which the instrument is leveled. I is the level on base plate E. Attached to the supporting bar B by means of set screws is a very strong but light bracket entirely independent of that portion of the instrument containing phorometer and lenses. In the end of this bracket is the chin rest J, and to the side of it is attached the bracket supporting the forehead rest. The chin rest J is elevated and depressed by means of a rack and pinion movement, K, and held at any desired position by a thumbscrew.



A, clamp; B, support bar; C, support nut; D, support binding screw; E, base plate; F, leveling plate; G, lens-carrier plate; H, phorometer support; I, level; J, chin; K, rack and pinion; *a*, lens carriers; *b*, approximation rod; *c*, revole cells; *d*, worm; *e*, lens cells; *f*, leveling thumbscrew.

In as few words as possible I shall endeavor to point out the advantages alleged for this instrument:

1. It is rigid. Dr. Herbert's is not: a slight stroke, such as would result from the putting in place or removal of a lens, being sufficient to cause it to vibrate from a minute to a minute and a half.

2. It is convenient. By loosening binding screw D, the instrument may be swung around over the table out of harm's way. The patient is seated at a convenient distance from the table, and the instrument is swung out in place (it projects nine inches from the edge of the table), and raised or lowered, as occasion requires, by means of nut C, thus preventing the necessity of having the patient get up one or more times to raise or lower a stool.

3. The lenses are nearer the ideal position. By placing the lens-carriers at an angle of forty degrees, you get the lens in rear cells at the nodal point or nearly so; your patient is not hampered by anything in getting close to the instrument, and has plenty of room for his nose and breathing.

4. The patient's head is securely and comfortably held in position by chin- and forehead-rests.

5. By means of the rack-and-pinion movement of the chin rest, the head may quickly be raised or lowered to get the pupils in the vertical center of the lenses.

6. The mechanism of the revolving cells is more perfect. The construction of the revolving cells will at once be seen. Revolving as they do within a complete ring, one half of the cell screwing into the other, makes them at once secure, and renders it impossible for them to catch or bind. The gear on the posterior edge is cut deep, so there will be no danger of slipping or jumping. The worm is so pitched that one revolution of the thumb-nut moves the cells two degrees. The outer nut, or the one for the left cell, is so arranged that by slipping it forward *both* cells may be revolved at once.

7. The phorometer, by being supported at both ends, *must* be level when the rest of the instrument is, as it has no chance to sag.

Dr. Stevens, in a recent article, puts special emphasis on the fact that to get accurate results with his instrument it *must be* level and at three or four inches from the patient's eyes, as at that distance there is little if any effort made by the ocular muscles to overcome the prismatic action. This principle has been carefully carried out in the construction of this instrument, making it, according to Dr. Stevens's definition, the most accurate of its class. The head, too, being comfortably supported, the patient is not nearly so apt to get out of position.

The advantages alleged for this instrument over all others are: 1. Rigidity. 2. Better position of the lens-holders. 3. Comfort and stability of the patient secured by forehead- and chin-rests. 4. Ease of control of the chin-rest. 5. Improvement in the revolving cells. 6. Greater accuracy in the phorometer.

Apologizing for the length of this article, and hoping others may find the bracket in some measure as convenient and accurate as I myself have, I will close by saying the instrument is made for me by Queen & Co., of Philadelphia, which is a guarantee that the workmanship is all that could be desired.

No. 111 Stephenson Street.

Miscellany.

Hypnotism Fifty Years Ago.—The *American Journal of Insanity* for January publishes an interesting article by Dr. James G. Kiernan, who remarks, in reference to a recent address on early American psychiatry, that the speaker hardly did full justice to some American alienists, especially to Dr. John

W. Galt, whose *Treatment of Insanity* is an encyclopædia of psychiatry hardly equaled as a compendium of current literature at the present time. American alienists, he says, have been fully awake to current movements of psychiatry. Dr. Galt stated that in the treatment of insanity the efficacy of mesmerism appeared doubtful, and he cited Esquirol to the effect that magnetism had been tried, especially in Germany, but facts in regard to its use in France were not exact or well observed. In 1813 and in 1816 he (Esquirol) had made a trial, with M. Faria, upon eleven insane women. Only one (remarkably hysterical) had yielded to the magnetic influence, but her mental state had undergone no change. It had produced no effects on the ten others. These trials had been made in the presence of M. Desportes, administrator of hospitals, and other persons, among them many physicians. These same trials Esquirol had repeated many times with various magnetizers, without more success. Dr. Galt also cited Guislain as follows: "As to animal magnetism, the results obtained from it are unsatisfactory; it is a means with which we ought to be on our guard. More than once it has produced disorder of mind."

Experiments were made in Richmond, Va., in 1842, of which Dr. Galt gives the following account: There was perfect silence enjoined the whole time. The patient seated himself on a chair, and the magnetizer on a higher seat in front of the patient, and at least a foot away from him. He collected himself for a few minutes, during which he held the patient's thumbs, and remained in this position until he felt that the same degree of heat was established between the patient's thumbs and his own. Then he drew off his hands, turning them outward, and placed them on the patient's shoulders for nearly a minute. Afterward he carried them slowly, by a sort of light friction, along the arm down to the extremities of the fingers. This was repeated five or six times. Then he passed his hands over the head, kept them there a few minutes, and brought them down, passing before the face at a distance of one or two inches, to the epigastrium, where he stopped again, either bearing upon the region or without touching it with his fingers. And thus he came slowly down the body to the feet. Passes or motions were repeated during the greater part of the course, and when the magnetizer wished to finish it, he carried his hands even beyond the extremities of the hands and feet, shaking his fingers each time. Finally, he performed some transient motions before the face and the chest at a distance of three or four inches, by presenting his hands, which were near each other, and removing them abruptly. Then, standing before the patient, he clasped her hands firmly in his own and fixed his gaze intently on her, her eyes being steadily directed to his during the whole process. About four minutes afterward he began to pass his hands alternately, or both at a time, from her forehead to her fingers, and continued this for two minutes; he then passed his right hand against her forehead, repeating the passes with his hands for nine minutes; he again placed his right hand on her forehead, making passes for about eight minutes, the time varying, of course, with the individual.

According to Caldwell, says the author, there are three schools of magnetism: 1. That of Chevalier Barbarini, who believed the effects to be owing merely to faith and volition. 2. That of Mesmer, who referred them to the passes only. 3. That of the Marquis de Puysegur, who attributed them to both. All three schools, more or less modified, are represented to-day among students of hypnotism.

Elliotson, who alleged that he cured periodical insanity by mesmerism, produced the sleep merely by suggestion. His will was powerless in all mesmeric experiments. He never accomplished anything by it alone. He had willed excitement of distinct cerebral organs, and willed powerfully, but always in vain. He had three patients, with each of whom he had formerly taken some weeks to induce sleep, who now went to sleep when he merely raised his hand or looked at them, when they were prepared to expect sleep. He told them that if they sat still he would mesmerize them with the door closed upon them. He shut the door, walked into another room, turned back, and found them asleep. While doing this, he thought as little as possible of them, and busied himself with other things.

According to Dr. J. K. Mitchell, says Dr. Kiernan, mesmeric effect is usually producible within ten minutes, and at the first sitting, although some persons have yielded only after long and repeated trials. In general, unless marked effects are produced in half an hour, subsequent trials are useless. Sleep is dissolved by time alone, the natural duration being from thirty minutes to five hours. Artificial awakening sometimes results from merely a single wave of the hand. The nervo-sanguineous temperament is the most susceptible to the action of mesmerism. The young and the old have the least susceptibility, and between twelve and twenty is the most favorable age. The influence of sex is very small. Mesmerism should be employed temporarily to relieve affections of a nervous character, when the usual means fail, and even here with due precautions. It has sometimes, especially in unpracticed hands, produced frightful disorders, both of mind and of body.

Ennemoser said that the hands were the proper organs of the will, through which volition became action. The greater the quietness of the manipulation, the less there was of bustle, gesticulation, and ceremony, the more advantageous would it be to the patient, whose imagination should not be struck with the oddity of the proceeding. No uneasy curiosity should be excited; the effects should steal on him unawares. The susceptibility to mesmeric impressions is in inverse proportion to the general organic force, and, more particularly, of the patient's nervous power.

Passavant stated that the eye and the hand not only received, but gave; the other senses only received; the sense of feeling became, in the hand, the sense of touch; from the continual activity of this sense a greater consumption of nervous power went on in the hand, particularly at the extremities of the fingers, and in consequence, probably, an increased efflux of the nervous æther; this process might be heightened in intensity by the action of the will. In the manipulations, the hand was to rest on the part affected (where the disease was local), or on those places where the most important nervous structures were situated, in particular, the head, the center of the cerebral, and the stomach, the center of the ganglionic nervous system. Passes made with the point of the fingers, or the palm of the hand, whether with or without contact, must be carried from above downward, from the brain toward the extremities.

From these and many other instances, says Dr. Kiernan, it is evident that the American alienists of the first half of the present century were familiar with, had experimented with, and had clearly anticipated almost every position of modern investigators concerning hypnotism. They recognized its dangers, its psychological basis, and the fact that an element of morbidness was needed to predispose the patient to susceptibility to hypnotism, also that the insane were subject to suggestion only in a limited degree.

The Late Dr. James Hewitt.—At the regular meeting of the New York Otological Society, held at the Academy of Medicine on January 22, 1895, the following was unanimously adopted and incorporated in the minutes of the society:

The New York Otological Society desires to place upon its minutes the sense of the loss it has sustained in the death of Dr. James Hewitt, one of its founders.

Although but a young man at the time of his death, Dr. Hewitt had already attained a prominent position in his profession, and had he lived would undoubtedly have become one of the distinguished aurists of his time.

With a singularly retiring and quiet nature, he had a most genial and cheerful disposition, and a simplicity of bearing and kindliness in speech and manners that endeared him alike to his friends and to his patients.

Resolved, That these resolutions be printed in the medical journals of this city, and that a copy of the same be sent to the family of the deceased.

[Signed.] GORHAM BACON, M. D.,
J. B. EMERSON, M. D., } *Committee.*

Starvation Insanity.—The *Nouvelle iconographie de la Salpêtrière* for December contains an interesting article in which M. E. Brissaud gives an account of a case which had come under his observation. The patient, a girl, nineteen years old, had fallen on her right hip about ten years before the author saw her. This was followed by a painful swelling, which rapidly disappeared, but left in its place a painful condition of a psychical nature, which persisted for many years. At certain times it was uppermost in her mind and, by an association of ideas, brought on various troubles, such as swelling of the abdomen and vomiting, or else angina and syncope, etc. In the beginning, a very excusable error in diagnosis was made in calling the disorder coxalgia and in prescribing treatment appropriate to that disease. Subsequently, when serious symptoms supervened in consequence of this error, it was thought to be an ossifluent abscess with peritonitis, and, if the patient's general condition at that time had permitted, laparotomy would have been performed.

The appearance of these disorders following hyperæsthesia of the hip is, says the author, on the whole, easy to understand. It was but a fresh example of hysteria simulating coxalgia, peritonitis, etc. With regard to the mechanism which governed the association of all these ideas, it is probable that the physician's diagnosis, his questions, his examination, his treatment, etc., were not without their influence on the patient. It is also easy to understand how the idea of starving herself became a fixed one in her mind. When she was about sixteen years old she was an object of ridicule among her companions because of her size, and, in her nervous condition, the desire to reduce her flesh became a mania, and, in order to realize this desire, the surest and the simplest way was not to eat, or to vomit whatever she had eaten, and she began systematically to refuse food and to vomit. She lost flesh rapidly and two or three times was at the point of death. At one time, in an access of religious frenzy, she was suddenly cured by taking two teaspoonfuls of Lourdes water. Another time, imagining that the Virgin had abandoned her, she concluded that she was a great sinner, and accordingly she made a number of confessions and stated that she had committed many sins, and, as the Virgin had not found her worthy of pardon, she would die in her sins. All this, says M. Brissaud, is the logical result of this form of delirium.

In this condition she was brought to the hospital on April 17, 1894. Her face was vacant and emaciated, and it had an old look. The bones of the face, the shoulder-blades, the ribs, the vertebral apophyses, the bones of the pelvis, and those of the limbs were very sharply defined. The skin was brown, wrinkled, flabby, and dry, and hung in folds over the parts it covered. The hair was dry, and thin in spots, particularly behind the ears, where two patches of alopecia were to be seen. The nails were irregular, and the patient gnawed them incessantly. The fatty tissue had almost entirely disappeared and the muscular tissue probably shared in this emaciation; but it was especially the adipose pannicle that had suffered the most from this starvation. The respiration, the circulation, the digestion, and the urinary organs seemed to be normal. The pulse was small, but regular; the temperature was perceptibly lowered, scarcely reaching 95·8° F. The region of the hip and the coxo-femoral articulation showed no symptoms of coxalgia, and all pain, whether spontaneous or induced, had disappeared. Moreover, it was impossible to discover any sensitivo-sensory mark of hysteria, and in spite of this bodily decadence the physical strength was relatively well preserved. She walked naturally, although rather slowly, and without much fatigue.

Her mental condition was equally troubled. She always answered correctly any questions that were put to her, but she appeared sad, apathetic, and indifferent. She seemed to be preoccupied with thoughts of remorse, of guilt, and of damnation. In the month of November, 1893, she had again gone to confession, but the relief obtained from this was only temporary, for she soon recalled other sins that she had committed, and these ideas became fixed.

After reminding the patient of the utter want of sense in these thoughts, of the dangers of the progressive starvation, and of the immediate necessity of eating, M. Brissaud told her that, if she did not eat willingly, he would have to resort to the use of the feeding-tube in order to give her nourishment. This threat appeared to frighten her, for she took the food that was given her without any objections and without reluctance. One beefsteak, a pint of milk, and two plates of soup were ordered every day until the 22d of April, when eggs were added to the diet, and after the 24th she was allowed to have vegetables. She was also ordered to remain in bed for the greater part of the day. The patient was subjected to this treatment without change for nearly three months, and no pathological symptoms were observed during this period, except slight vomiting and diarrhœa; the appetite was excellent and the digestion perfect. The favorable results of this treatment manifested themselves very quickly, and in less than three months the patient gained double her weight; the skin regained its color and its functions; alopecia no longer existed; the subcutaneous tissue was well provided with fat; the bones ceased to be conspicuous; and the outlines of the body became normal. Her strength and vigor also increased in direct proportion. Moreover, her mental condition had undergone a like transformation; her ideas of guilt and damnation had ceased to exist, all trace of religious delusion had been effaced, and both physically and psychically she might be considered as permanently cured.

These, says M. Brissaud, are the principal details in a long history. It seems to him that the patient was a true hysteric. The former existence of syncope and pseudo-coxalgia would seem to prove it, and the evolution, also, of the symptoms, their rapid cure, the unexpected return, all point to an hysterical origin. The study of the case from a psychological point of view is also well calculated to remove all doubts on the subject. It shows in a startling manner the origin and the filiation of the symptoms.

The author calls attention to another point in this curious case—namely, the patient's rapid return to her former weight. Such a rapid increase after convalescence from debilitating organic diseases does not occur; these sudden changes are observed only in hysteria. After an organic disease the influence of the nervous system on nutrition is generally exercised slowly and imperceptibly. Without doubt, he says, among hysterics this trophic influence is hastened by a fixed idea of regaining health and strength, and under these conditions marvelous results are rapidly produced, and this rapidity of restitution is analogous to that of starvation. Under the influence of a fixed idea we see the hysterical person starve with an extraordinary facility and soon arrive at the stage where marasmus and consumption set in. It is only exceptionally that the physical decline exceeds these limits, but when it does, no matter how vivid the fixed idea of recovery may become, death is inevitable.

The United States Pharmacopœia.—In an exhaustive and very interesting article by Dr. Charles Rice, introductory to a series entitled The Study of Pharmacy, published in a recent number of the *Pharmaceutical Era*, we find the following:

"A pharmacopœia should represent the broad results of therapeutic observations and investigations accepted by, or at least acceptable to, the medical profession at large in the country for which the work is written. In general, therefore, it should not introduce insufficiently tried new remedies or methods, but should accept only those which have, by matured and careful study, been found worthy of recognition. An exception to this rule may occasionally be found admissible, when a new form of preparation is introduced to take the place of one which has been found unsatisfactory. On the other hand, it ought to contain all remedies which are used in legitimate practice, and which the physician openly and designedly uses to obtain definite results. At the present time it is impossible to open any medical periodical or text-book on therapeutics without constantly encountering the names of the newer synthetic chemical remedies, such as antipyrine, sulphonal, phenacetine, aristol, etc., and yet these are kept out of the United States Pharmacopœia. Up to the year 1890 there was probably a sufficient excuse for this, because the permanency of many of these compounds was not yet fully assured, and the proprietary claims surrounding most of these substances were regarded as an ethical barrier against their recognition. It appears, however, that the views regarding the status of these remedies are gradually changing in favor of their future recognition. Most surely they should not be classed with proprietary nostrums, for in most cases their chemistry, mode of manufacture, constants of nature, reactions and tests are scientifically determined and known, and it is equally certain that they will be employed by the medical profession, whether they are recognized by the pharmacopœia or not. Their multiplication, aside from other causes, will gradually diminish the number of many of the more old-fashioned and, to a large extent, empirical preparations now official. Eventually the time might arrive when the majority of the energetic and efficient remedies used by the physician would have to be looked for in works of reference outside of the pharmacopœia. It is to be hoped that this matter will be well considered and that the present restrictions will be removed at the next convention.

"The question has often been raised, Why did the Committee of Revision not introduce a table of doses in the pharmacopœia? And it has been answered at various times, more or less completely, sometimes at great length. This may be done more briefly as follows: Doses of medicines can and should be determined on and authorized only by medical men, who are competent to judge of their effects. This work can not be undertaken by pharmacists. As long as the medical colleges, societies, and associations do not authorize their delegates to the convention, and their representatives, if they have any, in the Committee of Revision, to vote for the insertion of doses, none of them would feel justified in consenting to it, as there is a deep-seated impression abroad that the establishment of an official table of doses would place a dangerous weapon into the hands of unscrupulous persons, and might involve many physicians in suits for damages. All efforts, therefore, in favor of the introduction of doses into the pharmacopœia should be directed to the medical profession, and no blame for their omission should be attached to the Committee of Revision, which is powerless in the matter. It is suggested that a proposition be made to the medical profession, probably best to its representative body, the American Medical Association, to sanction a table of doses, prepared by a committee of therapeutic experts, to be printed in the pharmacopœia, with the distinct announcement that the doses given are the average ones to produce the ordinary expected effects, but that every physician has the right to use larger or smaller doses whenever such may, in his judgment, be required."

Anæmia in Nurslings.—M. Edmond Chaumier, of Tours, contributes an article on this subject to the *Journal de clinique et de thérapeutique infantiles* for December 27th, in which he says that writers are far from agreeing on the subject of the nature and the treatment of serious anæmia in nurslings. Syphilis, rhachitis, tuberculosis, leucæmia, pseudo-leucæmia, malarial disease, and infectious diarrhœas are causes that are the most frequently adduced, also hæmorrhages and all acute diseases. Each of these causes may have its part in the anæmia of early infancy, but there are still many cases of anæmia the origin of which is unexplained. Infection with special microbes has certainly been adduced, but this proves nothing. There is a form of anæmia easily recognizable and easily cured. The author cites a case which had recently come under his observation. The patient was a child seventeen months old; he was extremely pale, and his lips and the mucous membranes were entirely decolorized. He was very thin, the skin was soft and flabby, and there was a constant slight diarrhœa. There were no symptoms of syphilis or any trace of rhachitis, and there was nothing to indicate tuberculosis. The spleen and the liver were not enlarged, neither were the majority of the lymphatic ganglia; it was not, then, a question of leucæmia, pseudo-leucæmia, or malarial disease, and there was not enough diarrhœa to explain the great weakness and excessive anæmia. On examination, the author found the palate drawn up at the center, an hypertrophied ganglion behind each angle of the inferior maxilla, and the chest prominent—all signs of nasal obstruction; furthermore, the respiration produced a characteristic noise. On passing the index-finger behind the velum of the palate, the obstruction of the nasopharynx by the hypertrophy of the pharyngeal tonsil was easily discovered. This child had, then, adenoid growths which had mechanically given rise to anæmia.

The author has often seen children who were badly developed, pale, and sickly, whose arrest of development was caused by adenoid growths, but these children regained their color and their vigor after the nasopharynx was cleansed. He has, however, never seen a case of such pronounced anæmia as the one mentioned above. It has frequently been observed, he says, that the newborn can not nurse in consequence of nasal obstruction, and the gravity of coryza, among all young infants, does not lie in the disease itself, but in the existence of adenoid growths. Badly developed children who continue pale and sickly nearly always keep the mouth closed, which is not the case in other forms of adenoid growths.

The patient in this case did not open his mouth, which is an important fact, says the author. When the nose is obstructed and the mouth open, as is the rule, this partly supplies the deficiency in nasal respiration, but, if the mouth is shut when the nose is obstructed, a slow asphyxia is inevitably produced, causing anæmia and arrest of development, etc. The anæmia in this case was so excessive that M. Chaumier did not venture to operate for some weeks, after which he scraped the pharynx, during which procedure the child lost very little blood. Fifteen days later he repeated the operation, and the loss of blood was equally small. The child regained strength, color, and flesh rapidly, and at the end of a month his lips were red and his cheeks rosy.

Antispasmine.—In the *Revue internationale de médecine et de chirurgie pratiques* for January 10th there is an abstract of an article which was published in the *Journal de médecine de Paris* for December, 1894, in which the writer says that under this name a so-called combination of sodium salicylate and sodic narceine was put on the market in the year 1893. This product was first experimented with by Professor Demme, of Berne, who recommended it as an antispasmodic hypnotic. Experiments made since then by various writers seem to show that this medicament is very uncertain and has no therapeutic value sufficient to justify its use, at least among adults. The following formulas are employed by Professor Demme: 1. Antispasmine, 15 grains; cherry-laurel water, 150 grains. Fifteen drops of this solution are given to children with whooping-cough twice a day. 2. Antispasmine, 8 grains; distilled water, cognac, and mulberry syrup, each, 450 grains. For an adult the dose of this solution is a dessertspoonful three times a day. Antispasmine is a white powder, very soluble in water. The dose for children is from 1½ to 2½ grains, and for an adult from 3½ to 4½ grains.

A Race of Heavily-furred Cats.—An example of the adaptation of animals to circumstances is given in the *Lyon médical* for December 9th. In America, says the writer, there are large underground warehouses for the preservation of meats, poultry, and fish, where the temperature is maintained at about three degrees below the freezing-point. It was thought that this intense cold would cause the disappearance of rats and parasites, and in fact, in the beginning, they died. Gradually, however, they became accustomed to the intense cold, and were soon covered with a very thick fur extending from the nose to the tip of the tail.

An experiment was then made with cats, but they all succumbed to the cold, until a cat with unusually thick fur was brought in. This cat lived, her fur became still longer and heavier, and one day she gave birth to seven kittens, which were the objects of great care. At the present time these cats are entirely acclimated and have numerous descendants.

This fact, says the writer, calls to mind the savage cats in Canada, which have short tails, enormous eyebrows and whiskers, and a very thick fur. These cats, when brought out on a hot day, die, sometimes in a few hours, under the influence of the light and heat.

Multiple Sarcoma of the Skin in a Newborn Child.—At a recent meeting of the *Gesellschaft für innere Medicin*, of Berlin, a report of which appeared in the *Mercredi médical* for January 2d, M. Karewski presented the case of an infant, seventeen months old, born with small tumors irregularly distributed over the entire surface of the body and not having any connection with the nerves or with the blood-vessels. As the child grew larger the tumors increased in size. At the time of the meeting some of them had attained the size of a fist. They were flabby, movable, and covered by skin which was the seat of vascular dilatations. One of these tumors had been cut out and the microscopical examination had shown that it was a question of angeiosarcoma. The sarcoma might have had as a starting point the outer coat of the blood-vessels, an occurrence which, the speaker remarked, had been generally contested.

Cerebral Sclerosis due to Influenza.—The *Progrès médical* for January 5th contains a report of a recent meeting of the *Société médicale des hôpitaux* at which M. Rendu related the histories of two cases of cerebral sclerosis following an attack of influenza. The first case was that of a young and vigorous man, who had presented successively, during recovery from the disease, an incomplete, transitory hemiplegia which had lasted for fifteen days. Four months later symptoms of neurasthenia set in, followed by astasia, and finally symptoms of sclerosis in disseminated patches. The second case was that of a child, three years old, who had had an attack of amygdalitis which had been contracted during an epidemic of *grippe*. The child had been seized with convulsions, Jacksonian epilepsy, then transitory hemiplegia followed by partial hypertrophy of the limbs. M. Rendu thought these cases were of much interest clinically, for, although the question of local or diffuse sclerosis had been much better known from an anatomical point of view since the appearance of M. Marie's essay, the same could not be said from the clinical point of view.

The Treatment of Miliary Tuberculosis with Guaiacol.—The *Journal des praticiens* for January 12th publishes an article on this subject in which the writer says that since the year 1893 simple painting with guaiacol has been employed in cases of febrile tuberculosis. Bard, Lépine, and others have demonstrated by a series of observations that its antipyretic action does not improve the condition of consumptives with cavities, that it may perhaps ameliorate sclerosis, but that it produces better results in limited miliary tuberculosis of a doubtful diagnosis. These lasting curative results differ from the transitory antipyretic action obtained in ordinary tuberculosis. The writer relates the histories of four cases in which this treatment was employed, and the following conclusions from a physiological point of view, he says, may be drawn: 1. The antipyretic effects of guaiacol are rapid and lasting in miliary tuberculosis. 2. The effects on nutrition are shown by the amelioration of the general condition and of the local lesions. 3. Sometimes cutaneous erythema, hypothermia, and a tendency to collapse may be observed, which are due to the impurities in the guaiacol, and not to the medicament itself. Its positive indication is true tuberculous fever with the formation of new granulations; its contraindication is hectic fever.

The method of administration consists in varying the dose from eight to thirty grains at each application. Boscq prescribes the following mixture in order to produce the greatest tolerance: Equal parts of chemically pure guaiacol and sweet-almond oil. The backs of the hands are painted with this mixture and immediately covered with cotton, which is kept in place with a bandage.

A Russian physician, Bartoszewicz, who experimented with this treatment on sixty-five patients in Dr. Laminowsky's service at Kharkow, employed compresses of guaiacol on the anterior part of the chest and over the back. A piece of linen was moistened with from twenty-five to thirty drops of pure guaiacol and applied on the skin, which was then covered with waxed paper kept in place with a bandage, and allowed to remain for from one to two hours.

The Dangers of Beta-naphthol.—The *British Journal of Dermatology* says that Dr. Baatz (*Semaine médicale*, No. 59, 1894) points out a possible danger attending the use of beta-naphthol as an ointment. Two children, aged eight and six years, were treated for scabies with a salve containing two per cent of this drug. Three weeks later, when the skin affection was cured, albuminuria and œdema of both legs appeared, and one child died. Neither of the children had suffered from symptoms of renal disease before. A post-mortem examination was obtained, and the diagnosis confirmed.

THE NEW YORK MEDICAL JOURNAL, FEBRUARY 9, 1895.

Original Communications.

THE MILK SUPPLY OF NEW YORK
AND THE TESTS OF ITS AVAILABILITY FOR INFANT FEEDING, WITH A REVIEW OF THE METHODS OF STERILIZATION.*

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THERE seems to have been for some time a gradually growing opinion among the profession that the milk supplied New York city is primarily of an inferior quality and therefore unfit for infant feeding. It was with the view of ascertaining, if possible, the real facts concerning so important a question that a systematic examination of the milk supply of the city was undertaken by the author. If the milk which reaches the average store or dairy, especially during the heated term, be of questionable quality, certainly the further preservation of such milk is unavailing. The investigations extended over a period of some months—March to October—of the year 1894; a great number of tests were made; only enough for general deductions can be noted in this paper. In order that the results might be as far-reaching as possible, milk from many localities was procured. Since the largest summer mortality among infants is to be found in the tenement house districts, it will be observed that samples of milk were investigated from the most densely populated tenement districts; there were specimens from a less populous district, also from uptown on the east side, and likewise milk from exquisitely kept dairies on Third Avenue and the west side. Only by varied comparative tests could a broad result be obtained. We know of no better milk than fresh cow's milk procured at the time of milking at a first-class country dairy. Such a milk was taken as standard and with this the city milks were compared.

Milk taken from various sources in New York and at various periods of the year has much the same physical characteristics. It has the same volume of cream (twelve to fourteen per cent.), and it contains much the same amount of fat. The milk, after cream has been carefully separated, has an average specific gravity. The milk, in other words, is an average mixed milk. These facts have been investigated by Dr. Koplik.

There are here and there signs of adulteration, but the physical characteristics of milk furnished by contractors as delivered to them here in the city are uniform. The above, therefore, being fixed, the freshness and quality of milk as dealt out at the various stores is of interest as far as baby feeding is concerned.

In looking around for a reliable test we must choose that which promises and has given the best average results. No one known test can be said to meet so many requirements as the chemical test. The test chosen was Soxhlet's method as perfected by Plauth, which is based on the following principle: All fresh milk shows amphoteric reaction to litmus paper, owing to the presence in milk of both acid and alkaline phosphates. To phenolphthalein, however, milk acts as an acid; if a two-per-cent. alcoholic solution of phenolphthalein be added to a quantity of milk, and baryta solution be slowly titrated into the milk, a pink discoloration of the milk takes place, which rapidly disappears; when that point is reached at which the acid phosphates have become neutralized, one drop more of an alkaline solution gives a permanent pink hue to the milk. The amount of the solution needed to effect this is read off on the burette and is a measure of the acidity of the milk. Plauth used a normal solution of baryta of which one cubic centimetre was equal to 5 $MgSO_3$.

Each test was made as follows: Into each of two beakers twenty-five cubic centimetres of milk was poured, and to each of these was added two cubic centimetres of a two-per-cent. alcoholic solution of phenolphthalein. As the barium hydrate was slowly dropped into one of them, the milk was stirred with a glass rod; at intervals the milk in the two vessels was compared; the slightest tinge of pink left in the milk shows the titration to be complete. The amount of barium solution required is read off. Each cubic centimetre of the barium is equivalent to 5 $MgSO_3$; if four cubic centimetres of the barium were employed to neutralize twenty-five cubic centimetres of milk, then a hundred cubic centimetres would require four times as much, or sixteen, whose SO_3 equivalent would be 80 Mg. In the tables the acidity of a hundred cubic centimetres of milk will invariably be given.

A chemical rather than a bacteriological test was made, owing to the greater simplicity and practicability of the former as an everyday test. Clauss, in his researches, found that the increase of bacteria was forty-eight millions before there was an appreciable advance in the acidity. Plauth considers these results erroneous and due to the tremendous dilution of the milk by Clauss. Plauth bases his most valid objection to the bacteriological method upon the fact that plate cultures require a minimum exposure of forty-eight hours before reliable data can be obtained. A delay of forty-eight hours after the arrival of the milk in the city would render it unfit for use.

Plauth, in his tables, shows that there is always a difference in acidity between fresh milk boiled and unboiled; that the difference diminishes as the milk grows older. The lesser acidity of the boiled milk is due to the acid CO_2 which is driven from the milk on boiling. If two samples of milk are considered, a boiled and an unboiled specimen, should there be little or no difference between them, the milk is an old milk.

Plauth's Table—Milk kept at 10° C.

	Unboiled.	Boiled.
Twelve hours after milking	84	74
Twenty-four hours after milking	82	74
Thirty-six " " "	84	74
Forty-eight " " "	84	78
Seventy-two " " "	94	88

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* Read before the Section in Pædiatries of the New York Academy of Medicine, January 10, 1895.

The average morning acidities of both the city and country specimens were found to vary between 80 and 90. A safe morning limit, provided a carefully prepared baryta solution were employed, would be between 75 and 95. However, it is desirable to lay stress upon the fact that a milk whose morning acidity is 80 is not necessarily a better milk than one whose acidity is 90. They are both within safe limits.

But the *rate of increase* in the acidity of milk is the criterion by which it must be judged. Soxhlet showed that fresh milk for some time after milking does not increase in acidity. This interim of stationary acidity is known as the incubation period of the milk.

Plauth's Bacterial Table—Milk in Thermostat at 25° C.

	Acidity.	Bacteria.
When put in	90	42,692
In one hour	90	53,056
In five hours	96	666,240
In eight hours	104	8,186,200
In twenty-four hours	312	20,275,200

Showing an appreciable increase in acidity at the end of the fifth hour, the bacterial count at that time somewhat over half a million; when the incubation period was well over, the bacteria numbered eight millions.

During the last third of the incubation period Soxhlet allows that there may be a slight appreciable increment in acidity, and, as will be seen in the table, Plauth showed that the bacterial state is stationary until the last third of the incubation period; but when this period is over there is a decided increase in acidity, more and more rapid as the milk approaches the coagulation point. He also shows that there is a stage at which milk coagulates on boiling before spontaneous coagulation occurs. Both Soxhlet and Plauth demonstrated that the length of the incubation period depended upon the temperature at which the milk was kept, and the cleanliness attending its procural and preservation.

Milk kept at 15° C.

	Acidity.
Milking time	84
Four hours later	84
Eight hours later	83
Twenty hours later (end of incubation period)	84
Twenty-five hours later	98

Milk kept at 20° C.

	Acidity.
Milking time	84
Two hours later	82
Eight hours later	84
Ten hours later (end of incubation period)	90
Twenty hours later	112

From this we observe the shortening of the incubation period by ten hours in the milk kept at 20° C.

As regards the second factor, cleanliness, its influence on the acidity was demonstrated by Plauth, and will be shown later on in our own tables.

The period of incubation of milk is the only period during which milk is an available infant food; moreover, the limits of this availability have by common consent been fixed in the first two thirds of this period. It will therefore be self evident that the shortest incubation period for milk not kept on ice will be during the summer months, the longest in the winter time.

A series of tests of fresh country milk were made. Milk was obtained each morning at a country dairy in Essex County at milking time, the milk being still warm. The milk was taken from a thirty-five-quart can, and was therefore the mixed milk of six or seven cows. The dairy was clean, the dairymen took no *special* precautions about washing their hands, the cows' teats were washed off with a little of the milk of the first milking. The milk pails were scrupulously clean. The milking was over at about 6 A. M. The milk was taken directly to the country laboratory and emptied into sterilized nursing bottles for further use. A warm summer day; mean temperature of the day, 22·6° C.; showed amphoteric reaction:

	Fresh specimen, acidity.	Boiled specimen, acidity.
Milking time	84	70
Four hours later	84	
Six hours later	84	
Eight hours later	92	

August 24th.—A warm day; amphoteric reaction; 29° C. mean temperature:

	Dairy, raw.	Dairy, boiled.
Milking time	84	72
Three hours later	84	84
Eight hours later	84	86
Nine hours later	100	82

August 26th.—Amphoteric reaction; mean temperature, 24° C.:

	Dairy, raw.	Dairy, boiled.
Milking time	84	72
Six hours later	84	
Eight hours later	84	
Nine hours later	86	

August 27th.—Amphoteric reaction; 24° C.

	Dairy, raw.	Dairy, boiled.
Milking time	86	76
Six hours later	84	
Nine hours later	86	
Twelve hours later	92	

The difference between the raw and boiled milk is very evident in every case.

The lengthened incubation period on a cool summer day was clearly brought out; mean temperature, 15° C.:

Milking time	84
Four hours later	84
Seven hours later	82
Ten hours later	84
Thirteen hours later	86
Seventeen hours later	92, end of incubation stage
Twenty-four hours later	104
Thirty hours later	130, curdles on boiling.
Thirty-eight hours later	curdled.

The incubation period lasts about seventeen hours, then more rapid rise of acidity.

The effect of extra precautions as regards cleanliness at milking time gave interesting data. Specimens of middle milk were milked into sterilized tubes and plugged with sterilized cotton (Series A). A second series was taken, after washing the udder and teats thoroughly with warm boiled water; the hands also were well washed with hot boiled water (Series B).

Reaction amphoteric, mean temperature on that day:

	Series A.	Series B.
Milking time	82	82
Nine hours later	88	82
Thirteen hours later	114	88
Fifteen hours later	...	98

A few days later a similar series; mean temperature, 26° C.:

	Series A.	Series B.
Milking time	82	84
Three hours later	82	82
Eight hours later	86	84
Eleven hours later	100	90

The extra care lengthened the incubation period a number of hours. With similar experiments Plauth had most brilliant results, the milk remaining sterile twenty-eight hours.

The city tests were begun in February and were as follows:

Dr. Koplik's Tables.

February 28th.—Reaction amphoteric:

	Raw.	Boiled.
February 28th, 8 A. M	72	84
March 1st	103	92
March 2d	130	Does not coagulate on boiling.
March 4th, coagulated		

Milk of March 1st—reaction amphoteric; temperature, 13° C.:

	Raw.	Boiled.
March 1st, 8 A. M	93	87
March 2d	95	
March 4th	Coagulated.	

In winter weather city milk remains within the incubation period twenty-four hours, coagulation taking place in seventy-two hours.

Of greatest comparative interest, however, are the tests made during the summer months in New York, as compared with the country experiments. The city milk was on every occasion amphoteric in reaction when first obtained in the early morning. The milk delivered at the dispensary laboratory in the morning will be designated "laboratory" milk; this milk is known to be from a reliable dairy.

July 12th.—City milk, amphoteric reaction; mean temperature, 26° C.; no ice used to preserve the milk:

	Laboratory milk.	
	Raw.	Boiled.
8 A. M.	80	88
10 A. M.	92 Incubation, two hours.	
12 M.	90	

July 13th.—Temperature, 30° C.; exceedingly close day:

	Laboratory milk.	
	Raw.	Boiled.
8 A. M.	88	80
2 P. M.	164, sour.	

July 16th.—Temperature, 26° C.:

	Laboratory milk.	
	Raw.	Boiled.
8 A. M.	84	78
11 A. M.	80	
1 P. M.	90 Incubation, five hours.	
4 P. M.	96	
6 P. M.	104	

July 19th.—Unusually oppressive day; temperature, 30° C.:

	Laboratory milk.	
	Raw.	Boiled.
8 A. M.	90	84
1 P. M.	102 Incubation, five hours.	
3 P. M.	132	

July 24th.—A cooler day; temperature, 22° C.:

	Laboratory milk.		Avenue B store milk.
	Raw.	Boiled.	
8 A. M.	88	82	90
10 A. M.	84	..	90
1 P. M. (end of incubation period)	88	..	92
6 P. M.	120	..	102

Both specimens still within incubation period at 1 P. M.

Milk from various stations of a well-known charity was taken and tested. On July 28th, the hottest day of the summer, this milk remained within the safety limit two hours.

Specimens obtained in September of this same milk—warm day; mean temperature, 24°+ C.:

	Milk from Ninth Street (Depot).	From Third Street.
8 A. M.	80	86
10 A. M.	80	86
12 M.	82, incubation period over.	90
1 P. M.	92	98

On July 29th—mean temperature, 32° C.; milk from poorer districts and from a neat city dairy as procured:

	Dairy.	Ridge Street.	Orchard St.
9 A. M.	90	84	90
12 M.	98	86	90
1 P. M.	112	96	96
5 P. M.	Curdled.	Curdled.	Curdled.

August 1st.—Warm day:

	Laboratory milk.	Milk from First Street store.	Broome St.
8 A. M.	94	88	88
1 P. M. (end of incubation period)	100	92	96
3 P. M.	160	114	124

On August 4th the laboratory milk, when first tested at 8 A. M., showed an acidity of 94; a second trial, two hours later, gave the same result (94); a high initial acidity at the time of delivery, remaining constant at warm temperature for an interval of two hours, proved the milk to be within the incubation limit.

A cool summer day. Mean temperature, 20° C.:

	Hester St.	Mulberry St.	Ludlow St.
10 A. M.	84	92	96
Two hours later	84	92	94
Four hours later	86	..	96
Nine hours later	84	92	96

Incubation period lengthened on a cool day to nine hours without the aid of ice.

It will be seen that the incubation stage of fresh country milk on a hot summer day as compared with city milk exceeds it by about two hours; that city milk gives amphoteric reaction at the time of the morning tests; that there is a difference between the morning raw and boiled specimens in the city as well as in the country, but that this difference is uniformly greater in the case of fresh country milk. In *not one* instance was city milk upon its arrival in the morning beyond the incubation stage.

Furthermore, that the preceding deductions might be beyond dispute, milk from tenement-house districts was subjected to a most severe test—the thermostat test of Plauth, considered crucial by him.

As a result of innumerable examinations of milk whose source was known to him, Plauth came to the following conclusions:

(*a*) Fresh, clean milk—*i. e.*, in which at milking time cleanly precautions are taken—remains unchanged in its acidity after five hours, at least, of thermostat temperature.

(*b*) Fresh milk which is not clean remains unchanged four hours, but in the fifth hour shows an initial increase in acidity.

(*c*) Moderately clean milk, in the first two thirds of the incubation period, shows a beginning rise in acidity after three hours and a half; after two hours may show slight decrease in acidity.

(*d*) Milk in the last third of the incubation stage shows in two hours either no rise or a very slight rise; in three hours a marked increase in acidity.

(*e*) Milk beyond the incubation stage shows appreciable increase in acidity in one hour.

City milk from the poorer districts gave the following values. The thermostat was kept at a temperature of 36·5° C. to 36·75° C. Examinations extended over a period from September 26 to October 7, 1894:

	Raw.	Boiled.
First test:		
Store milk	77	63
Thermostat 36·5° C., three hours	75	
Second test:		
Store milk	85	80
Thermostat 36·5° C., after three hours	85	
" " after four hours	85	
" " after five hours	105	
Third test:		
Store milk	90	85
Thermostat 36·75° C., in three hours	85	
" " in four hours	90	
" " in five hours	90	
Fourth test:		
A sample of bottled milk	80	70
Thermostat 36·5° C., after two hours	80	
" " after four hours	80	

These tables corroborate previous experimentation, and show absolutely that milk on its arrival in the city is still within the incubation stage and remains thus within varying safe periods of time, and is a safe infant food. In only one instance did we find the milk so far advanced as the last third of the incubation stage (Test I).

The acidities which have been noted give evidence that so far as the age and acidity of milk *upon its arrival in the city* is concerned, milk from the better neighborhoods can lay no claim to superior excellence. On a very close September day milk was obtained at 7 A. M. from filthy stores on Ludlow, Bayard, and Ridge Streets, and from an excellent Third Avenue dairy.

	Acidity at			
	8 A. M.	10 A. M.	12 M.	1 P. M.
(*a*) Dairy milk	84	80	86	92
(*b*) Ludlow Street	80	80	82	92
(*c*) Bayard Street	86	84	84	88
(*d*) Ridge Street	80	82	82	86

At 1.30 P. M. milk was again procured at the down-town stores and dairy; a portion of the morning's (7 A. M.) milks had been put into an ordinary refrigerator well stocked with ice, and corresponding as nearly as possible to the temperature at which the store specimens should be kept.

		Acidity.		Acidity.
Dairy milk, second specimen,	2.30 P. M.	84	Same, refrigerator.	84
" " " "	4.30 P. M.	84	" "	84
" " " "	6.30 P. M.	88	" "	90
Ludlow St., second specimen,	2.30 P. M.	86	" "	80
" " " "	4.30 P. M.	94	" "	82
" " " "	6.30 P. M.	112	" "	90
Bayard St., no second could be obtained.			2.30 P. M.	88
	All sold.		6.30 P. M.	92
Ridge St., second specimen,	2.30 P. M.	90	Same, refrigerator.	82
" " " "	4.30 P. M.	98	" "	84
" " " "	6.30 P. M.	114	" "	100

The milk procured in the morning and kept on the ice in clean bottles showed about the same result in the case of the dairy milk. But the milk procured in the early part of the afternoon in the small shops showed the incubation period about over at the time that the second sample was obtained.

Carelessness as regards cleanliness or the temperature at which the milk was kept, or possibly both factors, showed the disadvantage which would accrue in further preservation of the down-town milk procured at 1.30 P. M. For such a state of affairs the storekeeper alone is responsible, and he, not those who supply him with milk, deserves criticism.

New York city milk is therefore, both in the winter and the summer, still within the incubation period on its arrival in the city, the incubation stage lasting twenty-four hours in the winter, thirteen to seventeen hours on a fairly cool day, and five hours on a hot summer day, after the milk reaches the city.

The excellent condition of the milk when it reaches the New York market is a tribute to the American method of shipment. Many hundreds of car loads come from a distance of two hundred to three hundred miles on slow milk trains. These refrigerator cars are well stocked, and the cans are filled full, the milk, as a rule, reaching the city perfectly sweet. This milk, if prepared early, we consider a good infant food.

Having established the status of milk upon its arrival in the city, the natural question arises, What further steps shall be taken to render this milk fit for infant use? In the average tenement-house family in the summer time milk is not procured once a day, and then in sufficient quantity for the entire day, but it is bought in two or three installments. Again, granted that sufficient milk for the twenty-four hours be bought, this may or may not be put on ice. No more than one out of five families in our crowded tenement-house district can afford the luxury of ice (as estimated by a careful observer), and these at best spasmodically. Therefore, as has been shown, in the summer time the milk must be bought early in the morning, by eight o'clock, and the quantity for twenty-four hours should be prepared for the baby by 10 A. M. Milk procured later in the day is unreliable in the poorer districts.

Milk was subjected to various procedures to ascertain their effect on restraining the acidity. Sterilized nursing bottles were invariably used, each bottle sufficing for but one test. The milk was kept at ordinary room temperature, as in the preceding tabulation.

The process of filtration, to which attention has been somewhat directed of late, was employed. Here again both city and country milk was taken. The Seibert aluminum filter, as of most recent date, was used.

August 24th:

	Fresh milk.	Fresh filtered milk.
9 A. M.	84	80
Four hours later	84	86
Seven hours later	88	88
Nine hours later	106	138, curdled.

August 26th:

	Fresh milk.	Fresh filtered milk.
6.30 A. M.	84	84
Six hours later	84	84
Eight hours later	100	96

August 29th:

	Fresh milk.	Fresh filtered milk.
6 A. M.	88	88
1 P. M.	88	92
3 P. M.	98	100
6 P. M.	128	140

August 25th.—Some of each kind was sterilized. One series of bottles was filtered through the Seibert filter before being sterilized.

Milk sterilized forty minutes in the Arnold steam sterilizer:

	Sterilized, unfiltered.	Sterilized, filtered.
August 25th	88	88
August 27th	90	88
August 29th	..	94
September 4th	..	90
September 6th	112	112

The preceding series of experiments indicate the negative influence of filtration as delaying the souring of milk. Filtration, therefore, may justly be said to have no effect on the activity of the *Bacterium lactis.*

Investigations were made concerning pasteurization as a preservative measure. Tests were made daily, extending over a period of twenty days. Laboratory milk, milk from small city stores, and fresh country milk was taken. The Freeman pasteurizer was employed, the bottles placed in the boiling water, remained there thirty minutes, were quickly cooled, and left standing *at room temperature.*

So much confusion as to the correct understanding of the process of pasteurization has crept into the recent medical literature that it may not be amiss here to give an exact exposition of the term and the manner of its origin. Pasteur, in both his works, *Etudes sur le vin* and *Etudes sur la bière*, shows in a conclusive and classical manner that wine and beer freshly made contain, in addition to the alcoholic ferments, *Mycoderma vini* and *levure de bière*, which are normal to the beer and wine, and certain extraneous micro-organisms which have contaminated the wine and beer during the process of manufacture. These extraneous organisms (the so-called *Mycoderma aceti*, etc.) cause the beer or wine to spoil subsequent to the storage. Pasteur's great merit was to have logically devised a method of destroying these foreign bacteria and yet leave intact the alcoholic ferments (*levure*) which are the essential agents in the formation of good wine. For to destroy both the alcoholic ferment and the foreign bacteria would leave the wine but an indifferent fruit juice, whereas to leave both in the wine results in the so-called deterioration (souring or bitter taste) of the wine (*maladie du vin*). Pasteur found that, by subjecting the freshly made wine to a temperature varying from 50° to 60° Celsius, the alcoholic ferment retained its life, while all foreign bacteria (*Mycoderma aceti*, etc.) were killed. Wine thus treated never turned sour or bitter, but as time passed became, according to the quality of wine and the variety of alcoholic ferment, of greater vigor and bouquet. This is the only process worthy of the term pasteurization. As to milk, pasteurization has been conceded by Pasteur himself to be useless so far as the preservation of the milk is concerned, for the low temperature of 50° to 60° C., while it will kill the *Mycoderma aceti* of the wine or beer, will not disturb the vitality of the *Bacterium lactis*, which is the chief agent in causing milk to spoil. Authors who have, therefore, used the term pasteurization as applied to temperatures of 70°, 75°, or 80° C. have rather, to say the least, misapplied and strained a very important term of bacteriological nomenclature.

Milk pasteurized (Freeman's instrument)

		Acidity.	
	9 A. M.	86	Temperature 28° C.
	12 M.	84	(mean daily temperature).
	2 P. M	88	
	4 P. M.	88	
	6 P. M.	88	
August 27th,	9 A. M.	92	Temperature 27° C.
	12 M.	94	
	3 P. M.	92	
August 28th,	8 A. M.	120	

Laboratory milk pasteurized

July 27th,	8 A. M.	84
July 28th,	6 A. M.	114
July 29th,	8 A. M.	82
July 30th,	5 A. M.	curdled.
"	6 A. M.	114

Sample of milk from Broome Street store; temperature, 28° C.:

	Acidity.
Pasteurized July 30th at 4 P. M.	80
July 31st at 1.30 P. M.	96

On July 31st, milk pasteurized at 8 A. M., 86, is on August 1, at 6 A. M., 140, curdled. Temperature, 26°.

August 1st, somewhat cooler day; mean temperature, 23° C.:

	Acidity.
Pasteurized August 1st at 9 A. M.	84
August 2d at 10 A. M.	86
" at 12 M.	90
" at 5 P. M.	110

On a warm summer day, pasteurized milk has a fairly stationary acidity ten to twelve hours after pasteurization; the acidity then rises slowly, and twenty hours after pasteurization the milk is curdled. In cooler weather the incubation period is lengthened to twenty-four hours or more. The growth of the *Bacterium lactis* is retarded for about six hours as compared with unpasteurized milk. The coagulation of pasteurized milk, twenty hours after pasteurization, and an increase in half that time, marks pasteurized milk a dangerous infant food.

Bitter, in his article in the *Arch. für Hygiene*, 1890, gives tables in which at an exposure of 22° C. the pasteurized milk coagulated in eighteen hours, thus confirming the tables of this paper. Bitter advocated a pasteurization of the milk at the country dairy, the milk thence to be sent in freight cars to the large cities. His method may meet the requirements of Germany, but not those of this country, where distances are longer, and slow freight trains from distant points require eighteen to twenty hours. Pasteurized milk would by that time be curdled (as shown above) in the warm weather, the *Bacterium lactis* for some hours having again had full sway.

Flügge states uncompromisingly that milk pasteurized at the country dairy must, upon reaching the city, be treated as unpasteurized milk, so far as its adaptation for an infant food is concerned.

City and country milk was sterilized and the results noted. The temperatures at which the sterilization was effected were absolutely under control. In each compartment of the laboratory steam sterilizers are placed fifty bottles; not every bottle can have exactly the same temperature, however carefully the steam may be regulated. Into the middle bottle of the top compartment of each of the three laboratory sterilizers a thermometer was introduced and a temperature 90° to 92° C. maintained for forty minutes.

These bottles were tested daily.

	Acidity.
Milk sterilized August 10th, at 8 A. M., after 12 hours	86
" " " " " after 36 hours	86
" " August 13th, after 12 hours	88
" " " " after 72 hours	88
" " " " after 122 hours	coagulated.
" " August 14th, after 12 hours	90
" " " " after 48 hours	90
" " " " after 2 weeks	curdled.

Below the 90° C. limit the milk could not be considered absolutely stationary in acidity longer than twenty-four hours. In several instances where the milk was sterilized at 87° C. to 90° C. the milk began to increase slightly in acidity twenty-four hours after sterilization; the weather had been unusually trying—32° to 34° Celsius at 3 P. M.

Sterilization above 92° demonstrated a greater lapse of time before any change occurred.

Of three bottles sterilized at 99° C., August 14th:

	Acidity.
First bottle, August 16th	88
Second bottle, August 30th	88
Third bottle, November 18th	still unchanged.

For everyday practical purposes, sterilization at low temperature, 90° to 92° C., meets all requirements. Although this temperature renders the milk far from absolutely sterile, the *Bacterium lactis* is rendered inert for two days at least at a summer temperature.

Flügge contends that the acidity of partially sterilized milk is no measure of the condition of the milk, as this milk undergoes alkaline fermentation which is due to the potato bacillus and its spores, which are not killed at so low a temperature. The activity of this bacillus causes a peptonization of the milk, evinced by a clear zone which may be seen below the zone of cream. Milk sterilized forty minutes at 90° C. to 92° C. gives no evidence of this peptonization for a minimum interval of five days. Even this sterilization temperature is not safe if milk is to be taken on a long journey for weeks, nor is it a method by which milk can be conserved for any *indefinite* period. But it is safe when milk is prepared *daily* for infant diet.

The facts enumerated show plainly that by this chemical examination the milk which is delivered at the New York retail stores is, if sterilized early in the morning, a wholesome food for babies. The chemical test is, however, elaborate and somewhat complicated for popular use, but is certainly most efficacious and desirable for laboratories or large milk depots. Allowing slightly for a personal equation in titration work, we think this method could be satisfactorily introduced. The baryta solution is at once covered with crude petroleum, and, if carefully prepared, remains constant for a number of months.

A milk which at the time of its arrival in the city has an acidity of 95 or over, and in which the difference between the boiled and the raw specimen is slight or perhaps not appreciable, should be withheld, and an hourly test should be made; any increase of acidity within an hour or two hours should condemn the milk as poor milk, and to be excluded from the market. The length of the incubation period of our milk in the winter renders systematic testing of winter milk unnecessary.

We must, when considering infant diet, select a food hygienically prepared and procurable by poor and rich alike. Certain it is that among our tenement house population the summer diseases play greatest havoc. To this infant population, whose mothers are most often careless and uncleanly, a milk should be given, which has been hygienically prepared, which remains unchanged in quality, without the aid of ice, for twenty-four hours at least on a warm summer day, and which is inexpensive. The ordinary city milk procured early in the morning and sterilized as above within a few hours fulfills well these requirements. However, as to the *sources* of our milk supply, it is scarcely necessary that the dairies of the farmer be supplied with appliances which in agricultural usefulness can only be compared to the outfit of the amateur photographer. In proposing impracticable conditions for a large milk supply like that of New York we arouse ridicule. A healthy herd of cattle and the most ordinary cleanliness of hands and animals, as shown in our work, are all we can ask. The present methods of milk transportation, superior, we believe, to any in vogue in Europe, with watchfulness on the part of our authorities upon the ever-encroaching adulterations of the small city dealer, will, with the foregoing hints as to the preparation of the infants' food, protect our little patients.

I desire in conclusion to express my thanks to Dr. Koplik, under whose supervision and guidance this work was carried on.

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The French Congress of Alienists and Neurologists.—We learn from the *Mercredi médical* that the sixth annual congress of the alienists and neurologists of France and the French-speaking countries will be opened in Bordeaux on the 1st of August, under the presidency of Dr. Joffroy, of the Paris Faculty of Medicine. The secretary general is Dr. E. Régis, of No. 54 rue Huguerie, Bordeaux.

THE ÆTIOLOGY OF STRICTURE OF THE MALE URETHRA,

WITH SPECIAL REFERENCE TO ITS RELATIONS TO GLEET.

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(*Concluded from page 139.*)

Strictures due to a chronic gonorrhœa comprise the great majority of strictures to be met with in the urethra. To hazard an estimate at the proportion of all strictures which would come under this class would be to make a statement which might be so inaccurate as to be misleading. The statement already given, that it preponderates numerically over all the other varieties of stricture taken together, certainly is a safe estimate even if it is indefinite.

A chronic gonorrhœa or a gleet may exist without the pre-existence of a stricture, but the variety of stricture under consideration can not exist without the precedence of a gonorrhœa which bears the relationship to the stricture of cause and effect.

The above assertion is in direct antagonism with the views taught by Otis, and is the vital point around which so much argumentative literature has centered. It is evident in view of its importance that the pathology of this variety of stricture is entitled to the closest consideration, and no apology need be offered for the introduction of subjects which at first sight may seem foreign to the one under consideration, but which nevertheless have a more or less direct bearing on it.

Gonorrhœal infection of the urethra consists in the inoculation in the urethral mucous membrane of a specific micro-organism which tends to be self-limited in its duration, but which under favoring circumstances may continue to grow and invade the urethral mucous membrane for an indefinite period.

It is not material whether it is the gonococcus of Neisser or some other microbe yet unheard of that is the ætiological factor in the propagation of this widespread malady. Suffice it to say that it is a specific micro-organism capable of setting up an acute inflammation of the urethra which runs its course in from four to six weeks, ending in the majority of cases in recovery; but in a certain proportion of cases recovery does not ensue; the process becomes localized in certain areas of the urethra, and while of a lesser degree of intensity than the original acute inflammation, shows but little tendency to spontaneous cure.

This is the form of urethritis to which we apply the term chronic, and it is the variety which is the progenitor of the great majority of urethral strictures.

To Finger, of Vienna, must belong the credit of placing the pathology of chronic urethritis on an accurate and scientific basis. His post-mortem investigations of numerous cases of chronic urethritis have such an important bearing on the subject of stricture and gleet that I will freely quote from his work on the subject* as follows:

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* *Blennorrhœa of the Sexual Organs.* By Dr. Ernst Finger. Third edition, p. 171 *et seq.* Anatomo-pathological Changes of the Pars Anterior.

"The hyperæmia, serous swelling, and infiltration which are observed with the endoscope so often during life either disappear post mortem or become less recognizable.

"There are, however, numerous macroscopic changes. The epithelium exhibits changes which vary from slight opacity to considerable thickening and whitish discoloration; the latter condition often simulates superficial cicatrices. Losses of epithelium are much rarer than thickenings, and are usually superficial and isolated. I never found extensive erosions or ulcerations.

"The changes in the subepithelial tissue, the swelling, and infiltration which depend upon hyperæmia, are indistinct on account of the disappearance of the hyperæmia. Only one group of cases exhibited changes of the surface which were due to swelling. In circumscribed spots the surface appeared finely ridged, uneven, containing small nodules, whose size varied somewhat. These were undoubtedly granulations, as was shown by the microscopical examination.

"There are striking changes in Morgagni's lacunæ. On section of the normal urethra these are invisible or appear as very fine dots. In a series of cases of chronic urethritis the openings are as large as the head of a pin, and with the surrounding parts may be elevated like a crater. In another group of cases the lacunæ are absent, and they are replaced by milky-white nodules which are imbedded in the mucosa.

"With the unaided eye it is often impossible to distinguish cicatrices from simple epithelial thickenings. This is particularly true of ridge- and net shaped, slightly elevated strictures, which are formed in part by epithelium, in part by subepithelial connective tissue.

"Non-constricting, depressed, eccentrically retracted callosities are not infrequent. Examination shows that they are always very superficial and due to changes in the uppermost layers of the subepithelial connective tissue.

"There are numerous interesting microscopical changes. In a series of cases the epithelium still retains its normal arrangement, but the uppermost layer of cylindrical cells is loosened and in a condition of mucoid degeneration. The transition cells, consisting normally of one or two rows, are often spread over many rows. Numerous pus corpuscles are imbedded between the cylindrical and transition cells. Another interesting change is the transition of cylindrical into pavement epithelium. Three types of pavement cells may be distinguished:

"(*a*) It resembles that of mucous membranes with pavement epithelium—*i. e.*, it consists of an undermost layer of cubical cells, several layers of polygonal cells, and an upper layer of pavement epithelium.

"(*b*) The epithelium is epidermoidal, consists of a lower layer of cubical cells, followed by several layers of polygonal or spindle-shaped cells analogous to the rete Malpighii; these cells constantly grow larger and flatter toward the surface.

"(*c*) The epithelium is like that over cicatrices, and consists of several layers of very flat pavement epithelium.

"This conversion of cylindrical into pavement epithelium, which causes a xerosis of the mucous membrane, is connected with the changes in the subepithelial connective tissue. Thus the first type of cells is found over recent round-celled infiltrations, the second type over older ones, the third form exclusively over firm connective tissue.

"The subepithelial connective tissue exhibits the most important changes, and is the site of the chronic inflammatory process proper. This consists of an infiltration of the connective tissue, which has a decided tendency to transformation into retracting connective tissue. In the more recent cases we find that the subepithelial connective tissue, sometimes only in the upper layers, sometimes extending even into the corpus cavernosum, contains a loose or dense infiltration, consisting of mononuclear and epithelioidal cells, sometimes mixed with pus cells. This infiltration surrounds the lacunæ and glands imbedded in the subepithelioidal tissue; hence it is also perilacunar and periglandular.

"In a group of cases the cellular infiltration contains numerous, evidently new-formed, very wide blood-vessels. These two factors—viz., the infiltration and the blood-vessels—give to the subepithelial connective tissue that papillomatous appearance, that mulberrylike condition of the mucous membrane in places which we described as granulations. The infiltration consists of round and epithelioidal cells; as it grows older the spindle cells become more abundant, the interfibrillary tissue becomes denser and firmer, and there finally results a tissue which resembles a cicatrix anatomically. It is not due to ulceration, but to chronic connective-tissue hyperplasia. The granulations which may have formed during the recent stage are flattened by the retraction, and a callosity results. This corresponds to the infiltration of the first stage; it is always circumscribed, sometimes located superficially in the uppermost layers of the subepithelial connective tissue, sometimes it extends deeply, even into the corpus cavernosum.

"The stage of infiltration and cicatrization may be complicated temporarily by exacerbation of acute inflammation and emigration of leucocytes.

"The lacunæ exhibit changes analogous to those in the mucous membrane. The epithelium shows desquamation of the cylindrical cells, proliferation of the transition cells, transformation into pavement epithelium. The infiltration in the perilacunar tissue often raises the lacunæ and dilates their lumen. If the infiltration in the connective tissue retracts, the lacunæ will become atrophic and disappear. Not infrequently the outlet is first narrowed, and the lacuna is then converted into a little cyst filled with pavement epithelium.

"Littre's glands, which are situated in the meshwork of the corpus cavernosum, exhibit two kinds of changes. In one the change is periglandular; the small-celled infiltration of the subepithelial connective tissue around the excretory ducts of the glands draws them downward and surrounds the gland and its duct. The excretory duct also exhibits epithelial changes which imitate those found upon the free surface—viz., the three types described above. Special interest attaches to the second type, in which the epithelium resembles that of the rete Malpighii. This is developed excessively in the excretory ducts, even extends into the body of the gland, pushes beneath the secreting glandular epithelium, and leads by compression to destruction of the acini. The secreting epithelium merely exhibits passive changes—viz., destruction by the periglandular infiltration, which penetrates into the network of the acini.

"Exacerbations of acute inflammation, with emigration of pus corpuscles, can also be demonstrated in the glands and their excretory ducts.

"In a number of cases the corpus cavernosum is entirely intact. It may also take part in two ways in the chronic inflammatory process.

"In one series of cases the chronic infiltration remains in the main superficial. It only enters the corpus cavernosum along the excretory duct and around the bodies of Littre's glands. This periglandular infiltration compresses not only the glands, but the adjacent spaces of the corpus cavernosum are also drawn into the retraction. The corpus cavernosum then appears to be traversed by an entire series of cicatricial connective-tissue bands.

"In another series of cases the chronic infiltration, which occupies the entire thickness of subepithelial peri-urethral tissue, also penetrates the corpus cavernosum; here it remains superficial or occupies its entire width. In the first stage of the small celled infiltration the trabeculæ of the corpus cavernosum appear enlarged and infiltrated with numerous round (later spindle) cells. If this infiltration, which is always circumscribed, undergoes retraction, the mucosa and corpus cavernosum are converted into a firm, retracting callosity. These deep-spreading callosities are the causes of stricture.

"Wasserman and Halle (1891) have confirmed these findings, and we are therefore warranted in defining stricture as the result of chronic cirrhotic peri-urethritis and cavernitis, which complicate chronic urethritis.

"Hence we must distinguish in the pars anterior two forms of the chronic process: a purely mucous, superficial form, which results in superficial, non-constricting, eccentrically retracting cicatrices; and a second form, in which the process extends to the peri-urethral tissue and corpus cavernosum, and thus leads to stricture."

On page 144 of the same work there appears the following: "So long as the process remains localized in the mucous membrane, these are the symptoms which may persist for years. That such a chronic urethritis, situated solely in the mucous membrane, may heal as the result of recovery of the spot of infiltration by the formation of connective tissue and superficial cicatrices I have proved by post-mortem examination. When the process extends to the submucous tissue, to the corpus cavernosum, and the chronic infiltration heals by the formation of retracting connective tissue, a new and gradually developing symptom of a more serious significance is added to the clinical history—viz., narrowing or stricture."

The pathology of chronic urethritis, as portrayed by Finger, sheds considerable light on the formation of stricture. Many questions still remain unanswered, and there is still much that is obscure, but the recent advances made in this line of study give promise that urethral pathology will soon be established on an accurate and scientific basis.

The chief point of interest that the subject has is the relationship of granulations or granular urethritis to stricture. An effort will be made to prove that a granular urethritis is not only the forerunner, but the prime ætiological factor, in the production of the great majority of strictures of the urethra, and by the same proof to demonstrate the fallacy of the theory, so generally accepted, that stricture bears a relationship to gleet of cause and effect.

It will be necessary, however, to enter somewhat in detail into the subject of granulations, and also, in so doing, avail ourselves of the results of investigations, not only in the urethra, but also in the conjunctiva, where we frequently find a similar condition present.

Granular urethritis and granular conjunctivitis are closely allied, not only in the source from which they are derived, but also in their pathology, symptoms, and course. A granular urethritis is the result of a gonorrhœal infection of the urethra. This is so well recognized that it is no longer a subject for discussion, and may therefore be passed over without further mention. It is difficult, however, to explain why the gonorrhœal virus should become localized to certain areas of the urethra to the exclusion of other areas which, to all appearances, are no better protected nor better able to resist the invasion of the micro organisms.

The analogy between granular urethritis and granular conjunctivitis has already been referred to, and, since the well-known course of the latter will be utilized to corroborate the statements concerning the less-known course of the former, it may be advisable to establish their relationship at the outset.

Granular conjunctivitis is, in the vast majority of instances, derived by contact with a similar case of granular conjunctivitis. It is well known that a single individual with this disease may infect a whole community, as is sometimes witnessed in asylums, schools, and barracks. A case of granular conjunctivitis always gives rise by transmission to a similar conjunctivitis, but it is now generally recognized that this is not the only source of the malady, for it has been shown that a gonorrhœal conjunctivitis may be followed, as in the urethra, by the formation of granulations, which in its turn may perpetuate the latter disease.

The following extract bearing on this subject is from Dr. Ernest Fuchs's *Text-book of Ophthalmology*, page 77 *et seq.*:

"Does any connection exist between trachoma and acute blennorrhœa?

"These two diseases, which both originate in infection, are, of course, in their typical form very different from each other. Nevertheless, the chronic blennorrhœa which develops from an acute blennorrhœa is so similar to the papillary form of trachoma that these two can not be distinguished from each other with certainty either by the clinical examination of the eye or by anatomical dissection.

"We may advance the following hypothesis: Recent acute blennorrhœa when transferred to another eye produces acute blennorrhœa in the latter also. But if the acute blenorrhœa has already passed into the chronic form, its transfer to another eye is no longer an acute but a chronic inflammation, which latter is trachoma. Different observations speak for the possibility of such a method of origin of trachoma. Goldzieher reports an epidemic of trachoma in the school for the blind at Budapest, an epidemic which had been introduced by a newcomer, a boy who had lost his sight from acute blennorrhœa. Through him all the male and most of the female scholars became affected with trachoma, all possible forms of which, including the pure papillary, the pure granular, and the mixed, could be recognized.

"Sattler has observed the following case: A mother, who was affected with leucorrhœa, gave birth to a child having acute blennorrhœa of moderate degree. The mother acquired a genuine trachoma by infection from her child. As she lived in a region perfectly free from trachoma, infection from any other source was excluded. Against such a connection, between chronic blennorrhœa following the acute form and trachoma, the objection has been raised that in the former disease granulations (lymphatic follicles) have never been observed. But this is not always the case. In the autumn of 1887, two girls, sisters, were admitted to my clinic, the elder of whom had acquired an acute blennorrhœa of the conjunctiva of both eyes as a consequence of her own leucorrhœa. The younger sister had caught the infection from the eyes of the elder and likewise acquired acute blennorrhœa of both eyes. In her case this was not quite so severe in its onset, and, after the greatest violence of the inflammation had abated, papillary outgrowths developed in the conjunctiva tarsi, and numerous granulations in the folds of transition, so that there was presented a perfect picture of mixed trachoma.

"In many other cases besides this I have been able to observe the development of granulations in the folds of transition after acute blenorrhœa, and still more frequently have been able to prove their existence by the microscopical examination of excised portions of the conjunctiva.

"From what has preceded we may draw the following conclusions: There is but one kind of trachoma, which, however, appears under various forms. The ultimate origin of the disease is probably referable to the secretion of genitals affected with gonorrhœa. This secretion produces in the human conjunctiva acute blennorrhœa, which passes into chronic blennorrhœa. The secretion of the latter produces in a healthy eye directly a chronic inflammation, trachoma, which then by a repeated process of transfer spreads of itself."

Premising that the relationship of granular urethritis and conjunctivitis has been satisfactorily demonstrated, and that we may fairly adduce from the one evidence to support the other, we are in a position to proceed with the pathology of the disease.

The first manifestation of a granular urethritis is a round celled infiltration of the subepithelial tissues. This infiltration may be limited to the mucous membrane or it may extend deeper, invading the submucous and cavernous tissue. The infiltrating cells tend to become heaped in clumps directly under the epithelium. New blood-vessels penetrate the infiltration, ramifying in the subepithelial clumps, giving to the urethra so affected the florid, papillary appearance so characteristic of granulations.

At a later stage the infiltrating cells become transformed into spindle cells and ultimately are converted into dense retracting connective or cicatricial tissue, while *pari passu* the epithelium of the affected portion passes into the pavement variety.

The contraction of the cicatricial tissue gradually strangulates the exuberant vascular supply of the granulation tissue, the affected area becoming as anæmic as it was previously plethoric. At the same time it gradually changes in color from florid to pale or pearly white. By this means Nature by a process of substitution cures the disease, for not only does the conversion of granulation tissue into cicatricial tissue obliterate the former, but in addition the virus or exciting cause of the granulations disappears and its further propagation is rendered impossible.

It should be borne in remembrance that the conversion of granulation into cicatricial tissue is a slow process, requiring months or even years for its completion, and may be more advanced at one part than another. Side by side may frequently be seen all gradations, from the florid papillary surface of recent granulations to the pale dense cicatricial tissue of the completed process.

While we can not but admire Nature's method of working out a cure in these troublesome cases, we must admit that this is an evidence that she sometimes bungles in her handiwork, for she relieves one malady by the substitution of another, often of more serious import—namely, the replacement of granulation tissue by cicatricial tissue.

It often happens that this is a matter of no importance, as when limited areas of the mucous membrane alone are involved, resulting in superficial callosities which do not produce an appreciable diminution of the urethral caliber. When the cellular infiltration involves not only the mucous membrane, but also the submucous and cavernous tissue, the resulting transformation into retracting connective tissue may produce serious changes in the lumen of the urethra, varying from slight coarctations to almost total occlusion. From what has been said about the analogy of disease as it appears in the urethra and conjunctiva, we would naturally infer that they would pursue a similar course—namely, the cure of the disease by its conversion into cicatricial tissue. This is just what happens in the conjunctiva, where the resulting cicatricial contraction frequently produces, as in the urethra, marked deformity of the affected parts.

Now that we have considered stricture and its causes, a similar though much briefer exposition of gleet and its causes will be necessary before we can establish in a satisfactory manner the relationship of these two diseases.

Gleet has been defined by Hunter, Cooper, and other authorities as an imperfectly cured gonorrhœa. This definition deals with the cause of the disease, and is open to the criticism that it is scarcely broad enough in its scope, since there are undoubtedly cases of gleet that are not gonorrhœal in origin.

Gleet is a chronic muco-purulent discharge which escapes from the meatus as the morning drop, and is less noticeable or may be absent during the day, when the urethra is frequently flushed during urination. The discharge in certain low grades of urethral inflammation may be muco-purulent and scant from the beginning. The terminal stage of a gonorrhœa is also muco-purulent, but we do not apply the term gleet to these cases unless they become chronic.

The constituents of the gleety discharge are mucus, pus, and epithelial cells, the proportion of each varying with the varying conditions of the urethra. An exudation of mucus free enough to escape from the meatus is not always pathological, as it may be witnessed in an otherwise healthy urethra under intense sexual excitement. This is, however, but transitory and has no relationship to gleet.

The proportion of pus cells depends somewhat upon the intensity of the inflammatory disturbance. In a general way, we may say, the more marked the inflammation the greater the proportion of pus cells, while the preponderance of epithelial over pus cells is an indication of the favorable progress of the disease. The frequent microscopical examination of the discharge is therefore of some value from a diagnostic point of view.

A gleety discharge is an indication of a low grade of urethral inflammation, although the absence of a visible discharge is not necessarily a proof of the absence of a localized urethritis. The inflammatory origin of gleet is universally conceded; the only debatable question that may arise concerns its source, whether from a catarrhal or a granular urethritis, or from ulceration of the mucous membrane. Repeated endoscopic examinations have shown the frequency and often the association of the two former processes, while the same method of examination has shorn ulceration of its terrors and relegated it to a very minor position in the category of urethral ills. We may, therefore, safely say that a gleety discharge has for its source certain areas of the urethra which are in a state of chronic catarrhal or granular inflammation, and that both these processes are frequently present at the same time, while gleet due to ulceration (by this term is meant ulcers of the urethra so large as to be easily perceptible on ocular inspection) is so rare that for all practical purposes it may be ignored.

It is unnecessary to go into further detail on the subject of gleet. Its relation to stricture, to which much of the foregoing has evidently led up, will next receive consideration. The relationship of stricture and gleet, according to Otis, is simply one of cause and effect. In the light of the pathology of stricture as shown in this article, the arguments on which this statement is based will not bear investigation. If gleet is a symptom or result of stricture it necessitates the priority of existence of the latter, but it has been shown that stricture tissue is in the great majority of cases the terminal stage of a granular urethritis, and it has been shown that gleet is one of the earliest symptoms of a granular urethritis; therefore the impossibility of establishing the priority of stricture is evident.

A stricture resulting from a gonorrhœa does not manifest itself until the lapse of months and often years after the inception of the gonorrhœa, but it is a matter of common observation that the gleety stage is usually well established in a much shorter period, all of which is contrary to what we should expect were the latter a symptom of the former. Were stricture the cause of gleet, we should naturally expect that in those cases that remain untreated the progressively increasing obstruction to the stream of urine produced by the continuous contraction of the stricture would in like ratio tend to aggravate the gleety discharge. On the contrary, it is a very general rule that the gleety discharge progressively diminishes and usually ultimately disappears, notwithstanding that the stricture may be more evident than ever.

Even the most ardent disciples of Otis must concede what from their standpoint must seem inexplicable—namely, that a gleet is more commonly associated with those recent coarctations of slight degree called strictures of large caliber, than with the long-standing strictures of small caliber. This can be readily explained when we consider that the conversion of granulation tissue into cicatricial tissue obliterates the former, so that when cicatrization is complete the granulations with their gleety manifestation have disappeared.

Another argument that may be adduced to support the above is the fact that traumatic strictures are not necessarily associated with gleet at any stage of their formation, because this variety of stricture has not, as an ætiological factor, a preceding granular urethritis.

The genito-urinary surgeons who maintain the dependence of gleet upon stricture have unfortunately made the mistake of placing the cart before the horse, or, to put it more accurately, they have placed two results of the same disease in the false relationship to each other of cause and effect. What is gleet but the muco-purulent discharge resulting from a chronically inflamed urethra? What is stricture but the connective tissue transformation of the cellular elements of a granular urethritis into cicatricial tissue?

Even the arguments brought forward by Otis to prove his own teachings may be turned against him and made to tear down the very fabric they erected. An analysis of the reasons for holding the original views promulgated by Otis, and still more or less closely adhered to by his followers, can not but be, in the light of recent pathology, both instructive and interesting.

Otis bases his arguments to support his theory that stricture of the male urethra will create or perpetuate a gleet on the supposition that the stricture acts as an impediment to the passage of the urine.

No one will deny that a well-defined stricture, say fifteen millimetres or less, will interfere with the passage of a stream of urine; but these are the kind of strictures that are least often accompanied with gleet. The variety of stricture which is most frequently accompanied by gleet is the stricture of large caliber which does not obstruct the stream of urine.

To appreciate what Otis considers as coming within the limits of stricture, it is only necessary to glance at the records of his own cases, for which he has performed urethrotomy. We shall see frequent illustrations of strictures ranging from thirty to thirty-five millimetres. In his work on stricture of the male urethra he has tabulated the number and size of the strictures in a hundred and seventy-four cases as follows:

Size of strictures in millimetres.	Number of strictures.	Size of strictures in millimetres.	Number of strictures.
1	1	23	18
1½	1	24	36
2	1	25	44
3½	1	26	27
5	1	27	15
11	1	28	39
12	3	29	20
14	5	30	61
15	8	31	9
16	3	33	7
17	1	34	18
18	11	35	9
19	15	36	5
20	12	38	1
21	8	39	1
22	19		

The total number of strictures in this table is four hundred and twenty-one, of which three hundred and twelve, or about seventy-five per cent., range from twenty-four millimetres upward, and twenty-six per cent. are thirty millimetres and upward. Many of the strictures of thirty millimetres and upward are only from one to four millimetres smaller than the given size of the urethra. Without stopping to consider the propriety of calling these strictures, we must deny most emphatically that they would interfere with the passage of a stream of urine by acting as a point of increased friction, for even the most capacious urethra rarely emits a stream of urine larger than a No. 25 sound, and a fair average of the size of the stream of urine may be given as about eighteen millimetres in circumference. This estimate, however, is given by the writer simply from observation and not from actual measurement.

It is difficult to comprehend how a stream of urine ranging from fifteen to twenty millimetres can be retarded in its passage through a urethra which does not manifest points of constriction until it is dilated to a size of thirty millimetres or upward. There is a very general misapprehension of the pressure exerted against the urethra in the passage of a stream of urine. It is generally supposed that where there is an obstruction to the passage of a stream of urine, as in stricture of the urethra, there is an increased pressure against the urethral wall at the constricted area. The writer remembers hearing a prominent professor of surgery advocate before an international medical congress the method of dilating strictures by instructing patients to close the meatus and resist the passage of the stream of urine. It will readily be conceived how much worse than useless is this method of treatment when we consider not only that the strictured area is the least yielding part of the urethra, but also that a stream of urine exerts least pressure against the strictured area. Let the urethra, for the sake of illustration, be represented by the tube *a a* in Fig. 13, *s s* representing a stricture.

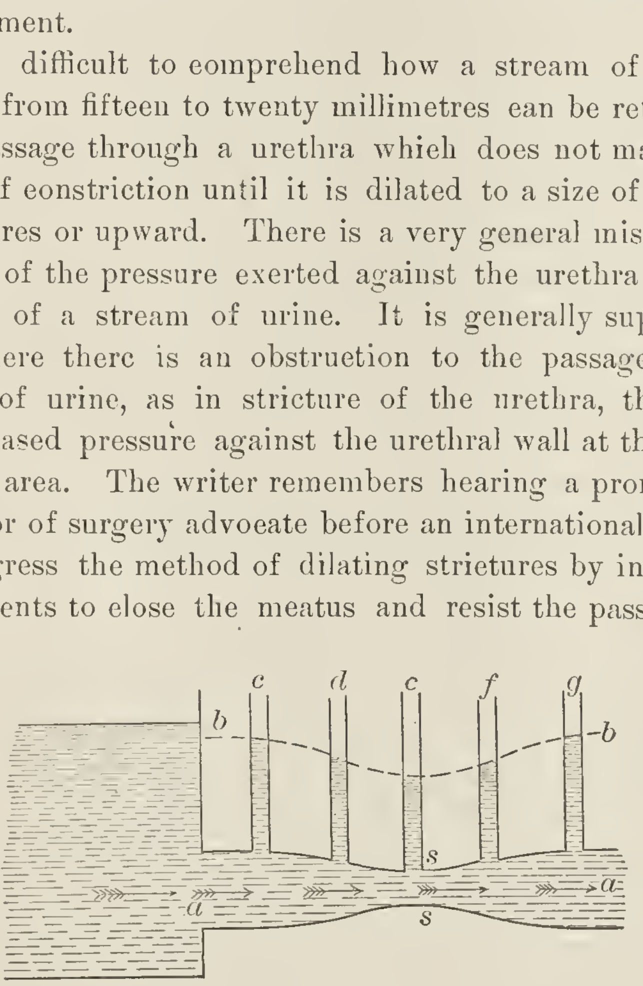

Fig. 13.

It will be found that in the passage of the stream the least pressure will be exerted against the urethral walls at the strictured area *s s*, as is shown by the height the water rises in the tubes *c*, *d*, *e*, *f*, *g*, or in the water-pressure line *b b*.

Before concluding, the following deductions on the causation of stricture and its relations to gleet may be drawn from the foregoing:

1. Strictures are more frequently caused by gonorrhœa than all other causes combined.

2. Strictures due to gonorrhœa are secondary to the formation of granulation tissue. The latter is caused by the long-continued growth and localization in certain patches of the urethra of the gonorrhœal virus.

3. Granulation tissue in its early stage is one of the most common sources of gleet. Its ultimate conversion into cicatricial or stricture tissue destroys its gleety manifestation, so that by the time the process of cicatrization is complete the gleety discharge has disappeared.

4. The depth to which the granulation tissue has invaded the urethra determines the degree of the stricture. If it is confined to the mucous membrane, superficial callosities are formed which do not obstruct the urethral canal. If the cavernous tissue is invaded, true stricture is produced.

5. Gleet is an early manifestation while stricture is a later manifestation of granulation tissue, but owing to the process of cicatrization being only partially completed they are usually associated with each other. Complete cicatrization obliterates the former and perpetuates the latter.

6. The relationship of stricture and gleet is therefore not one of cause and effect. They are only related in so far that they may be derived from the same source. The evidence produced that stricture may cause or perpetuate a gleet is not supported by recent pathological investigation.

The cure of a gleet depends on the removal of its cause. The importance of establishing the cause is therefore evident. A consciousness of the enormous amount of unnecessary urethral surgery that has been undertaken for the removal of fancied or real strictures as a means of treating gleet has impelled me to publish the results of my convictions in the hope that it may be instrumental in directing attention to the true source of a most annoying malady —stricture of the urethra—and in establishing its true relationship to its congener, gleet.

The West End Medical Society.—At the last meeting, held on February 2d, the following officers were elected: Trustees, to hold office for one, two, and three years, respectively, Dr. Dawbarn, Dr. Halsey, and Dr. E. J. Ware; president, Dr. F. M. Crandall; vice-president, Dr. Le Roy Brown; treasurer, Dr. H. G. Myers; recording secretary, Dr. F. J. Brockway; corresponding secretary, Dr. E. Harris; pathologist, Dr. J. S. Ely.

THE BRYSON SYMPTOM IN EXOPHTHALMIC GOITRE.[*]

WITH A REPORT OF FORTY CASES.

By HUGH T. PATRICK, M. D.,
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FIVE years ago Dr. Louise Fiske Bryson[†] first called attention to a condition in Graves's disease that has since been called the Bryson symptom—viz., diminished chest expansion or vital capacity. She cites it as one of the "distinctive, fixed conditions" prevailing in this disease which "afford the only rational basis for prognosis." Other fixed conditions are not specified and no measurements or cases are given. Dr. Græme M. Hammond[‡] considers it "of the greatest importance in regard to the prognosis" and "also of assistance in locating the seat of the lesion." He says further: "Dr. Bryson states that where the expansion is found to be reduced to half an inch or less the termination of the case is invariably fatal." He found the symptom present in the eight cases reported in his paper, and as recovery took place the expansion increased. Dr. A. B. Pope[#] has reported a case of exophthalmic goître in a man with chest expansion of an inch and a half, and in the discussion Dr. E. Le Fevre said the symptom was "owing to some nervous influence similar to that which gave rise to the rapid heart action."

Three years after her first paper Dr. Bryson[‖] resumes the theme, giving particular prominence to the respiratory symptoms, and emphasizing especially diminished chest expansion, but she seems to have receded somewhat from her former positive position as to its pathognomonic importance, as of twenty cases the Bryson symptom was present in only thirteen. She considers the disease, however, to be "a disorder of nutrition *respiratory in its first manifestations*,[△] and even makes this assumption the foundation of a therapy consisting of a series of respiratory gymnastics executed by means of Taylor's respirator. These views have been quoted at home and abroad,[*] and the Bryson symptom would seem to be about to take its place among the important signs of Graves's disease as bearing upon the diagnosis, prognosis, pathology, and treatment. Hammond,[†] indeed, distinctly calls it the fourth cardinal symptom, a distinction, by the way, which belongs to Marie's symptom—tremor.

At the time when Dr. Bryson's first article appeared I had under observation a case of exophthalmic goître which I measured several times, finding the chest expansion not materially diminished. After this I measured a number of cases, finding the expansion sometimes diminished and sometimes about normal, and I presently noticed that diminished expansion seemed to go with a diminution in general vitality and muscular strength. I finally, then, began comparing the chest expansion with the hand grasp as recorded by the dynamometer, this affording the most convenient, if only approximately accurate, index of the general muscular condition. It is the result of these measurements that I wish to present. I may premise that only well-developed, in a measure typical, cases are comprised in this report, no *formes frustes* being included, and that the diagnosis was in every instance confirmed by some well-known neurologist. I have therefore deemed it unnecessary to lengthen my paper by giving the symptoms of each case in detail. With the exception just noted, the cases have not been selected, but embrace all that I was able to measure from November 1, 1892, to May 1, 1894.

The patients were all women, and it may be worthy of note that of some sixty cases seen since 1891 only two were in men.

TABLE I.—GRAVES'S DISEASE.

No.	Age.	Duration of disease.	Date of examination.	Chest expansion.	Average.	DYNAMOMETER.			Remarks.
				Centimetres.		R.	L.	Average.	
1	29	4½ years.	Nov. 1, 1892.	4½	....	40	30	.....	Following fright.
			Dec. 8, 1892.	4½	....	47	40	.....	
			Feb. 25, 1893.	4	....	46	37	.....	
			Mar. 2, 1893.	4½	4·31	50	45	41·8	
2	30	2 years.	Nov. 1, 1892.	5½	....	55	45	.....	
			Feb. 17, 1893.	4	4·75	60	57	54·2	
3	32	4 years.	Nov. 30, 1892.	1¾	....	2½	2½	.....	At fourth examination she had been two weeks confined to bed, following mental worry. May 17th, much better; had gained over twenty pounds.
			Dec. 14, 1892.	1¾	....	12	16	.....	
			Dec. 21, 1892.	2¼	....	26	16	.....	
			Jan. 28, 1893.	1¼	....	..	..	....	
			May 17, 1893.	2	1·8	16	16	10·7	
4	37	1 year.	Nov. 9, 1892.	3	....	37	47	.....	Is right-handed, but has always been stronger in left.
			Nov. 30, 1892.	3½	3·25	40	50	43·5	
5	31	Probably 4 years.	Oct. 15, 1892.	7	....	67	47	.....	Much worse since a confinement nine weeks ago.
			Dec. 2, 1892.	5½	6·25	49	48	52·75	

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[*] Read before the Chicago Medical Society, October 1, 1894.

[†] A Preliminary Note on the Study of Exophthalmic Goître. *N. Y. Med. Jour.*, December 14, 1889.

[‡] A Contribution to the Study of Exophthalmic Goître. *N. Y. Med. Jour.*, January 25, 1890.

[#] *N. Y. Med. Jour.*, April 19, 1890.

[‖] Exophthalmic Goître: A View of Thirty Cases. *The Post-graduate*, July, 1892.

[△] Italics mine.

[*] Frank S. Johnson, *Trans. Ill. State Med. Soc.*, 1893, p. 193; J. Madison Taylor, *Med. News*, 1893, pp. 673, 711; William Oliver Moore, *Internat. Clinics*, 1893, i, p. 92; Edmund Lee Tompkins, *Amer. Jour. of Obstet.*, November, 1893; W. H. Thomson, *N. Y. Med. Jour.*, June 3, 1893; William A. Hammond, *Dis. of the Nerv. Syst.*, 1891, p. 790; Landon Carter Gray, *Treat. on Nerv. and Ment. Dis.*, p. 551; Mannheim, *Der Morbus Gravesii*, Berlin, 1894, p. 33; Oppenheim, *Lehrb. der Nervenk.*, Berlin, 1894, p. 829; Grasset et Rauzier, *Mal. du syst. nerv.*, Montpellier and Paris, 1894, ii, p. 309; Debove et Achard, *Manuel de méd.*, Paris, 1894, art. by Létienne, vol. iv, p. 397; Blocq, *Études sur les mal. nerv.*, Paris, 1894, p. 173.

[†] Græme M. Hammond, *loc. cit.*

No.	Age.	Duration of disease.	Date of examination.	Chest expansion.	Average.	DYNAMOMETER.			Remarks.
				Centimetres.		R.	L.	Average.	
6	23	1 year.	Feb. 20, 1893.	4½	4·5	22	15	18·5	
7	17	1½ year.	Nov. 19, 1892.	5	5	65	55	60	
8	40	12 years.	Nov. 1, 1892.	4	....	30	25	.....	Goître from youth.
			Jan. 5, 1893.	3½	3·75	30	18	25·75	
9	55	8 years.	Nov. 2, 1892.	3½	3·5	37	30	33·5	No treatment the past year, as treatment the two preceding years almost cured her.
10	35	8 years.	Nov. 3, 1892.	2	2	20	10	15	Much worse since influenza two years ago.
11	30	2 years.	Nov. 9, 1892.	6	6	67	63	65	Developed after hemiplegia. Cerebral apoplexy.
12	21	3 years.	Nov. 12, 1892.	7	7	60	50	55	
13	18	2 years.	Nov. 14, 1892.	6½	6·5	50	50	50	
14	28	4 months.	Nov. 12, 1892.	5½	5·5	44	44	44	
15	51	4½ years.	Nov. 16, 1892.	5½	....	45	55	.....	Locomotor ataxia for the last ten years.
			Mar. 2, 1893.	5	5·25	42	40	45·5	
16	24	1 year.	Nov. 19, 1892.	5	....	30	45	.....	Stigmata of hysteria; right hand excluded from estimate, as low figure is due to psychic inhibition.
			Dec. 14, 1892.	4	4·5	3	62	45·6	
17	19	3 years.	Nov. 22, 1892.	3½	3·5	45	45	45	
18	26	9 months.	Nov. 29, 1892.	4	....	62	57	.....	
			Dec. 14, 1892.	3½	....	62	55	.....	
			Jan. 10, 1893.	4	3·83	67	53	59·33	
19	35	1 year.	Dec. 7, 1892.	4	4	62	56	59	Was much worse eight months ago; all symptoms were more pronounced.
20	48	2 years.	Dec. 20, 1892.	5	5	15	10	12·5	
21	20	9 months.	Dec. 20, 1892.	4	4	47	37	42	
22	21	Uncertain, 1 to 4 years.	Jan. 5, 1893.	4½	....	48	47	.....	Patient thinks an operation on the nose for catarrh aggravated the disease.
			Jan. 20, 1893.	3½	....	50	35	.....	
			Feb. 16, 1893.	5	....	47	37	.....	
			Mar. 2, 1893.	5	....	42	40	.....	
			Apr. 27, 1893.	4½	....	40	30	.....	
			July 10, 1893.	4½	4·45	35	35	40·5	
23	39	8 years.	Jan. 10, 1893.	3½	....	60	60	.....	
			Feb. 17, 1893.	3½	3·5	50	50	55	
24	25	....	Jan. 13, 1893.	3	3	16	16	16	Has had goître ten years.
25	38	4 years (?).	Feb. 16, 1893.	4	4	37	33	35	Nervous and irritable four years. All symptoms of Graves's disease five weeks, following failure in business.
26	21	3 years.	Feb. 18, 1893.	6½	6·5	30	20	25	Complicated with hysteria.
27	30	6 months.	Feb. 22, 1893.	4½	....	67	67	.....	Has *imperative ideas.* March 2d, feels much better.
			Mar. 2, 1893.	4½	4·5	85	85	76	
28	29	4 years.	Feb. 24, 1893.	5	5	71	59	65	Symptoms aggravated by operation on uterus two years ago.
29	37	7 months (?).	Mar. 1, 1893.	5½	5·5	65	60	62·5	Difficult labor seven months ago, since which time is nervous and anæmic; is now two months pregnant; all symptoms of Graves's disease six weeks.
30	..	2 years.	Mar. 3, 1893.	3	3	60	57	58·5	
31	34	11 months.	Mar. 9, 1893.	4½	....	60	57	.....	Following confinement eleven months ago.
			Mar. 20, 1893.	5½	5	50	50	56·75	
32	23	2 months.	Mar. 15, 1893.	4	....	37	30	.....	
			June 13, 1893.	3½	3·75	32	30	32·25	
33	38	4 years.	May 17, 1893.	3½	3·5	45	45	45	Following a fright; sister has same disease, and is much worse.
34	38	3 years.	May 12, 1893.	5½	....	43	43	.....	Following influenza; thyreoidectomy thirteen months ago, with great improvement.
			May 22, 1893.	4½	5	42	45	43·25	
35	29	4 to 5 years.	May 12, 1893.	4½	....	57	63	.....	
			July 10, 1893.	5	4·75	55	65	60	
36	46	2 years.	Apr. 23, 1893.	4½	4·5	50	47	48·5	
37	18	2 years.	Nov. 17, 1893.	4	....	50	40	.....	Following fright.
			Jan. 18, 1894.	2	....	66	45	.....	
			Jan. 30, 1894.	3½	3·16	32	37	45	
38	26	2 years.	Dec. 5, 1893.	2	....	55	50	.....	
			Jan. 19, 1894.	2½	....	55	55	.....	
			Jan. 30, 1894.	2	2·16	40	45	50	
39	39	3 years.	Jan. 1, 1894.	3	....	50	45	.....	Epilepsy; much worse the last three years.
			Jan. 18, 1894.	3	....	40	38	.....	
			Jan. 30, 1894.	3	3	32	27	38·66	
40	29	2 years (?).	Feb. 12, 1894.	4	....	30	25	.....	After inception cured (?) by rest, etc.; recurrence one year ago.
			Feb. 24, 1894.	4	....	28	12	.....	
			Mar. 6, 1894.	4½	....	35	23	.....	
			Mar. 31, 1894.	4½	....	40	32	.....	
			Apr. 13, 1894.	4	4·2	35	25	28·5	
					4·3	..	..	43·75	
Diminution....................................					0·5	..	..	12·61	
Diminution, per cent..............................					10½	..	..	22⅖	

It is a matter of common remark that no two observers take the chest expansion exactly alike, so that figures obtained by different persons can not be compared with confidence. To form a safe basis for comparison, therefore, I took the chest expansion and dynamometric measurement of twenty-eight women who came to the dispensary for various ailments, selecting those whose troubles would not, in my opinion, affect the result. These are presented in Table II.

TABLE II.—*For Comparison.*

No.	Age.	Affection.	General condition.	Chest expansion.	DYNAMOMETER.		
					R.	L.	Average.
				Ctm.			
1	52	Tabes.	Fair.	4	30	25	27·5
2	24	Hysteria.	Very good.	7	80	70	75
3	31	"	Good.	5	45	45	45
4	51	Chronic rheumatism.	Fair.	4	40	25	32·5
5	41	Incipient tabes.	Good.	5½	55	55	55
6	29	Cerebro-spinal syphilis; dement. paral. (?)	Good; very muscular.	5	100	75	87·5
7	30	Epilepsy.	Good.	3½	50	50	50
8	46	Ophthalmoplegia.	"	7	47	47	47
9	23	Brach. neuralgia.	Very good.	4½	80	70	75
10	43	" "	Fair.	6	72	70	71
11	39	Chronic rheumatism.	Very fair.	5½	60	40	50
12	18	Sciatica.	Fair.	4½	55	50	52·5
13	26	Neurasthenia.	Very fair.	3¾	65	50	57·5
14	38	Hysteria and neuralgic pains.	Fair.	4½	58	42	50
15	17	Hystero-epilepsy.	Good.	5	55	47	51
16	28	Lumbago.	Very good.	6	95	95	95
17	36	Hysteria.	Fair.	4	30	30	30
18	22	"	Good.	4¾	46	46	46
19	34	Hysteria and neuralgia.	"	6	75	70	72·5
20	22	Hysteria and organic heart disease.	Fair.	4½	37	50	43·5
21	30	Headache.	Anæmic.	4	75	70	72·5
22	30	Tabes.	Very good.	5½	80	67	73·5
23	15	Hysteria.	Good; well developed.	4½	45	35	40
24	19	Valvular heart disease.	Anæmic.	4½	51	55	53
25	27	Headache.	....	4½	50	40	45
26	41	Hysteria.	Good.	4½	61	54	57·5
27	23	Hysteria and lumbago.	Very good.	4	47	47	47
28	26	Sciatica.	Good.	6	77	75	76
				4·8	..	..	56·36

I am well aware also of the varying results given by the dynamometer, and I do not allege absolute accuracy for my figures or wish to make too sweeping deductions from them, but all measurements were taken by myself in as nearly a uniform manner as possible, and sources of error excluded as well as might be.

It will be seen that the average chest expansion in the forty cases of exophthalmic goître is 4·3 centimetres and the hand grasp 43·75 kilogrammes; in the twenty eight other cases, 4·8 centimetres and 56·36 kilogrammes respectively—that is, the expansion in Graves's disease is diminished half a centimetre, or ten and a half per cent., the hand grasp 12·61 kilogrammes, or twenty-two and two fifths per cent. In other words, the grasp is diminished more than twice as much as the expansion. It may be contended that the average expansion of the twenty eight women used for comparison is not up to the normal, and I think this may possibly be true, but I also think they make a far better basis for comparison than statistics of measurements taken by some one else whose methods would doubtless differ in some degree from mine, and consequently whose results, other things being equal, would differ from mine. Further, these measurements were made in the same dispensary which furnished the majority of the cases of Graves's disease,* and the subjects are fairly representative of the class of patients furnishing the material for this report, and, as before mentioned, the pathological conditions in these women were not such as to materially affect chest expansion or hand grasp. But even supposing that the expansion of the twenty-eight might be materially below the normal, we could not suppose in all these various cases a condition which would affect chest expansion to the exclusion of other muscular action, including hand grasp, and as we find that the hand grasp in Graves's disease is diminished twenty-two and two fifths per cent. and the expansion only ten and a half per cent., the natural conclusion would be that if one of these two is pathognomonic of this malady it would be the weakened grasp and not the diminished chest expansion, an assumption I would not for a moment entertain. Again, we find of the forty cases twenty-six with an expansion below the average of the twenty-eight, while thirty show a diminished grasp.

Could we take accurate dynamometric measurements of the lower extremities and of the pelvic muscles, I have no doubt we should find an equal falling off. Many of these patients complain of a sudden "giving way of the legs," and placed in the recumbent posture show their muscular weakness in the manner of rising.

A woman now under observation, not included in this report, is a case in point. It is not what could be called a very severe case; she does her own housework, gets about very well, hand grasp and chest expansion only slightly diminished, and yet she rises from the supine position much like a patient with idiopathic muscular atrophy; that is, she first raises the trunk by means of the arms till she rests on her elbows; then, again by help of the arms and with a peculiar wriggle or writhing movement to bring accessory muscles into play, she brings the trunk to the perpendicular; the erect position is then attained, with manifest effort, by turning round and pushing herself up with her hands first on the floor and then on her thighs or adjacent objects.

I think the diminished power of convergence often observed, as well as the occasional affection of the laryngeal muscles, is quite analogous to these other findings, and is simply a part of a general myasthenia, sometimes affecting one set of muscles more, sometimes another.

I find, further, that many of these cases show a rapid and marked falling-off in both chest expansion and hand grasp on repeated effort. Thus either may diminish one half after three or four trials in rapid succession, and in a general way the decrease affects both and is proportional to the debility.

The idea that the diminished chest expansion is simply part of a diminished vitality or energy is borne out by the history of individual cases. I have generally found that as the patient improves in general tone the expansion increases (and *vice versa*), although not necessarily in the same ratio, and that the grasp goes with it hand in hand. But as the diminished hand grasp shows the larger percentage in the table, so here it is apt to show the larger fluctuations, which would seem again to indicate that it is the more delicate index of the two. These facts are well illustrated by Case III. The rule, however, is not absolute, and

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* Professor Mendel's *Poliklinik*, Berlin.

Case XXXVII is a striking exception in the first two examinations.

The only one of my patients (Case III) who ever showed an expansion as low as half an inch (1·25 ctm.), indicating, according to Dr. Bryson, an absolutely fatal termination, had, four months later, gained over twenty pounds in weight, and was better than at any time during the six months she was under observation.

I think, then, we may conclude that the Bryson symptom, although present in many cases of exophthalmic goitre, is in no wise pathognomonic of this affection, or even an important sign; that it has no special significance in relation to the prognosis, pathology, seat of the lesion, or treatment, and should be relegated back to the comparative obscurity of an individual in a large community of manifestations which all depend alike upon the general state; a state which makes the French designation of the disease, exophthalmic cachexia, quite as appropriate as any other.*

VENETIAN BUILDING.

THE VALUE OF GUDE'S PEPTO-MANGAN IN THE TREATMENT OF ANÆMIA.

By HUGO SUMMA, A. M., M. D.,
ST. LOUIS,
PROFESSOR OF PATHOLOGY, PATHOLOGICAL ANATOMY, AND BACTERIOLOGY, MARION-SIMS COLLEGE OF MEDICINE;
PHYSICIAN TO THE EVANGELICAL DEACONESS HOSPITAL;
PATHOLOGIST TO THE REBEKAH HOSPITAL.

THE year 1893, with the publication of the results of very careful chemical investigations of the conditions of the blood in various diseases, especially those of the blood itself by Professor von Jaksch (1), the well-known author of the *Handbook on Clinical Diagnosis*, marks a new era in our understanding of the various anæmic processes. Our former vague knowledge of these conditions was molded into definite shape and form chiefly by his successful effort to elucidate all the characteristic features common to the various forms of anæmia. He was thereby enabled as the first one to give a definition of this, up to this time, so pliable and undoubtedly much-abused term, anæmia.

Anæmia, in the broadest sense of the word, includes all those processes characterized by a decrease in the amount of albumin and by an increase of the liquid part of the blood; in other words, hypalbuminæmia and hydræmia are conditions present in all forms of anæmia, and this holds good not only in cases of primary anæmia, like leucæmia and chlorosis, but also in all so-called secondary anæmia.

This discovery enables us to understand the hitherto empirical fact that the treatment of anæmia requires not only or exclusively the administration of iron, but that all the metabolic processes, especially the introduction and assimilation of albuminous substances, must be increased, should the treatment be followed by success. But just this part of the treatment is exceedingly difficult, since one of the most constant symptoms which we meet with in the various forms of anæmia is a more or less high degree of anorexia. This anorexia completes the "circulus vitiosus" so frequently observed in clinical pathology—a circulus vitiosus which must be understood in each individual case in order to be amenable to successful treatment. For it is evident that a continuous anorexia will lead to insufficient nutrition, to subnutrition, thereby constantly increasing the condition of hypalbuminæmia.

The anorexia is, however, a natural sequelæ of this abnormal condition of the blood, in consequence of which, at least in the greater number of cases, the secretion of hydrochloric acid is decidedly diminished (2).

In the treatment of these cases, therefore, we must constantly bear in mind the condition—hypalbuminæmia. In order to facilitate the increase of albumin in the blood, notwithstanding the anorexia already existent, its administration in the form of easily assimilated peptones would be most rational.

Prompted by this thought, I began in the spring of 1893 to make use of Dr. Gude's preparation, known as pepto-mangan, in most all cases of anæmia that came under my observation, with the exception of those accompanying or following chronic infectious diseases, such as tuberculosis, or of malignant tumors, such as cancer, etc. I collected from my clinical record thirty-four cases. The greater number of these were closely observed, not only as to the influence of the remedy upon the subjective symptoms, but also as to its effects upon the blood by careful examinations which I carried out with the aid of Gärtner's hæmatokrit (3).

This excellent instrument, which requires the use of Professor Gärtner's *Kreisel* (spinning top) centrifugal machine, enables, in a very accurate manner, a determination of the volume percentage of the red blood-cells within about ten minutes.

I prefer this method of determining the efficacy of a remedy against anæmia to the old method of counting the red blood-corpuscles.

Although, generally speaking, the number of the red blood-corpuscles bear a certain proportion to the volume percentage, yet it would be wrong to identify both. In blood diseases especially, the knowledge of the volume percentage is undoubtedly of great importance.

During the above-mentioned period I observed neither cases of leucæmia nor of pernicious progressive anæmia. The thirty-four cases I treated with pepto-mangan were partly cases of chlorosis and partly secondary anæmia, occurring chiefly after subacute malaria and typhoid fevers. Of these I select six as paradigmata, as it were.

Two of these were cases of chlorosis and four cases were secondary anæmia:

CASE I.—Miss A. S., aged eighteen years; chlorosis rubra; oligocythæmia and oligochromæmia; palpitation of the heart; frequent pulse; coated tongue; fœtor *ex ore*; constipation; irregularity in menstruation; easily fatigued; muscular weakness.

At the beginning of treatment, thirty-per-cent. volume; eight days later, thirty-eight per cent.; at the end of the fourth week, forty-eight per cent. Great improvement, slight catamenial disturbances only remaining.

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* I wish to express my great gratitude to Professor Mendel, Professor Jolly, Professor Oppenheim, Professor Bernhardt, Professor Eulenburg, and Dr. Goldscheider of Berlin, Professor Brissaud of Paris, and Dr. J. Hughlings Jackson of London, for permission to examine cases entering into this report.

Case II.—Miss E. B., aged sixteen years; paleness of skin and visible mucous membranes; slight dyspnœa, short breath; oligocythæmia and oligochromæmia; palpitation of the heart; tachycardia; anæmic systolic murmurs, increased second pulmonary sound; disturbances in menstruation; tired feeling; sleepy condition.

At the beginning of treatment twenty-eight-per-cent. volume of red blood-corpuscles were found; increased within eight days to thirty-five-per-cent. volume; after four weeks, forty-five per cent. Apparently complete recovery.

Case III.—R. T., aged five years; first treated for subacute malarial disease extending over two months. Patient had greatly decreased in weight. No appetite, retarded action of the bowels; great pallor; continuous tiredness and weakness. On examining the blood, I found thirty-five-per-cent. volume of red blood-corpuscles; eight days later they increased to forty-two per cent.; at the end of four weeks to forty-eight per cent. Complete recovery.

Case IV.—Mrs. A. R., aged twenty-eight years; suffered from chronic malarial disease. Mother of two children, the youngest four months old. Far advanced case of secondary anæmia. Patient unable to do any kind of work. Digestive disturbances. Determination of volume of red blood-corpuscles showed thirty-two per cent., which increased within eight days to thirty-eight per cent., and finally reached forty-five per cent. Great general improvement.

Case V.—Mr. T. K., aged nineteen years, butcher. Typhoid fever of moderate severity; during this disease panaritium of right thumb followed by lymphadenitis axillaris. Slow recovery. Anæmic condition very pronounced. No prominent single feature. General languor. Shortly after patient had entered the period of reconvalescence the blood exhibited twenty-six-per-cent. volume of erythrocytes; fourteen days later an increase to but thirty-two-per-cent. volume; after four weeks, forty-six per cent. Patient now in very good health.

Case VI.—Mr. T. M., aged twenty-four years, saloon keeper. Ulcus ventriculi rotundum chronicum for seven years. Intense localized pains with frequent attacks of vomiting, sometimes of pure blood. Hyperchlorhydria of moderate degree, 3·2 per cent. Quite pronounced anæmia. After recovery from primary disease the volume of his red blood-corpuscles amounted to thirty-six per cent.; eight days later we found forty-per-cent. volume; finally, fifty-per-cent. volume. Patient up to this time was free from symptoms of any kind.

In conclusion, I should like to state that similar good results were obtained in the remaining twenty-eight cases. It is especially worth while mentioning that no bad after-effects could be detected. In this connection I call special attention to the absence of constipation that could be traced back to the use of this preparation.

The dose varied from a teaspoonful to a tablespoonful three times a day an hour after meals, either in sherry or milk, according to the individual case, especially according to the condition of the digestive organs.

Literature referred to.

1. Jaksch, R. v., Professor. Ueber die Zusammensetzung das Blutes gesunden und kranken Menschen. *Zeitschrift für klinische Medicin*, Bd. xxiii, pp. 187–224.

2. Bouveret, L. *Traité des maladies de l'estomac*, Paris, 1893, pp. 709, 710, with complete enumeration of literature.

3. Friedheim, Dr. Ueber die Volumbestimmung der roten Blutkörperchen vermittelst des Gärtner'schen Hämatokrit und der Kreisel-Centrifuge. *Berliner klin. Wochenschrift*, 1893, No. 4.

THE ÆTIOLOGY AND TREATMENT OF SPASM OF ACCOMMODATION.

By GEORGE F. SUKER, M. D.,
TOLEDO, OHIO.

The spasm of accommodation is frequently, if not generally, brought about by the abuse and excessive use of the muscles of accommodation under unfavorable circumstances. The causes of spasm may be enumerated as follows:

1. One of the most frequent causes is working with minute objects, which can only be seen distinctly when brought closer to the eye than the normal *punctum proximum.* Especially is this so when the work is carried on by scant illumination for any length of time—*e. g.*, reading fine print during twilight hours, writing, or doing fine needlework. For the same reason, in order to obtain a larger retinal image, amblyopes and astigmatics hold their objects so near their eyes as easily to subject themselves to spasm of the accommodation. Hyperopic refraction at all times calls forth an excessive employment of accommodation when no glasses are worn or when the glass worn is too weak. It is for this reason that we so often find all kinds of spasm of accommodation among the hyperopes. This is especially prominent among students, the majority of whom are hyperopic. These often wear no correcting glasses, thus leaving a good share of the range of accommodation latent, which invariably produces a spasm.

2. Irritation of the ciliary muscles, especially of the ciliary nerves, often gives rise to various forms of spasm. The progressive form of myopia may be mentioned in this connection as producing spasm, also incipient glaucoma.

3. Insufficiency of the recti interni is another cause of spasm. At the same time insufficient externi recti are prone to produce more or less spasm of accommodation; for with insufficient interni recti an effort far above the normal is called for to achieve the necessary convergence to maintain the point of fixation, and this calls forth too great a strain on the power of accommodation. This is so from the fact that convergence and accommodation, up to a certain point, are closely related actions. This state of affairs is prominently brought forth in myopes.

4. Furthermore, various kinds of traumatisms are very apt to produce spasm of the accommodation. Foreign bodies in the conjunctiva or in the cornea frequently maintain a spastic myosis or accommodation for the near point. The spasm here is due to reflex irritation.

5. Morphine and calabar bean are cited as specific causes of certain forms of spasm. Even a spasm of the orbicularis palpebrarum has been credited by von Graefe with having caused spasm of the accommodation. How spasm of this muscle could produce a similar condition of the muscle of accommodation is rather strange indeed.

6. The effort to overcome diplopia, especially in recent cases, may give rise to spasm of accommodation. This occurs more frequently when the diplopia is due to insufficient muscles than when it is due to other ocular defects.

7. At times, on the instillation of homatropine, a spasm of accommodation may arise. This usually occurs when five or six applications have been made, and may be accounted as a reflex spasm. This form is of short duration, and can be overcome casily by the continuance of the homatropine or by the use of the ordinary sulphate of atropine, preferably the latter.

8. Certain hyperæsthetic conditions of the retina may bring about spasm of accommodation. This is purely of a reflex nature. It occurs in cases where the retina is over-sensitive to diffusion circles. The retina is the regulator, as it were, of the accurate image formation, and the inaccuracy dependent on the diffusion circles is the point of irritation giving rise to a reflex spasm.

9. Finally, inflammatory conditions of the conjunctiva, cornea, or sclera are capable at times of producing spasm. This is found mostly among those of a highly strung nervous system, in whom the slightest irritation is sufficient to produce a spasm of almost any muscle. The rarer forms of spasm are attributed to epilepsy, hysteria, and disturbances of the central nervous system. Irritation of the cilio-spinal center may produce the same condition spoken of. Then, too, certain brain lesions are credited with the production of spasm of the muscle of accommodation.

The treatment of spasm of accommodation is as follows: 1. If possible, remove the exciting cause; this certainly is of prime importance. 2. Avoid the continual straining of the eyes; advise frequent intervals of rest if work can not be entirely suspended. 3. Obtain the best illumination possible; ameliorate the too intense light by wearing smoked lenses. 4. Treat any insufficient muscle; relieve all irritations. 5. The spasm which produces a certain amount of latent hyperopia is to be overcome by prescribing suitably adjusted convex glasses. The same may be said of myopia and astigmatism. It is not absolutely necessary to correct the entire amount of hyperopia, for a certain portion may remain uncorrected without causing any evil results. 6. In myopes, when the spasm is due to irritation of the ciliary muscle, it can be overcome by local leeching and insistence upon absolute rest for the eyes. 7. The mainstay in the treatment is the sulphate of atropine, which is sure to allay the spasm as long as it is instilled, and in the majority of cases gives a cure, providing the former exciting causes are to a great extent done away with. A stronger solution than usual is employed, for it takes a longer time for it to act on a spastic muscle than on a normal one. One may employ it as strong as gr. j to ʒ j or ʒ ij of water, two or three drops to be instilled three or four times daily. 8. In traumatic cases make use of antiphlogistic measures. Remove foreign bodies if there are any present. 9. The constant galvanic current is much lauded in certain cases. At times a rapid local abstraction of blood may materially reduce the spasm for the time being. At no time should we forget to make use of constitutional treatment. If atropine produces untoward effects, sulphate of duboisine may be used in its stead, though it is not so reliable as the former.

Upon the whole, the treatment of spasm of accommodation is satisfactory both to the patient and to the physician.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

Published by
D. Appleton & Co.

Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, FEBRUARY 9, 1895.

THE DOCTORS OF NEW YORK REGIMENTS IN BROOKLYN.

It is always a hardship for men to be taken away from their business for the purpose of doing military or jury duty, and the service required during the recent strike in Brooklyn of a large part of the National Guard resident in the city of New York was an unusual hardship, for the weather was uncommonly trying, the men were badly housed and fed, a great share of what they did was in the line of police duty rather than military service, and they were almost constantly exposed to the missiles of concealed foes. Yet there was next to nothing from them in the way of complaint, even in private. They did their work manfully, indeed heroically.

Among these men there were many members of our profession, men who could ill afford the interruption of their practice that had to be submitted to. People are notoriously impatient and unreasonable when anything interferes with their obtaining their own doctor's attendance without delay, and we can well imagine the unamiable and captious remarks that must have been made in many a family during the week that a number of New York doctors were obliged to stay in Brooklyn. Moreover, there must have been in many instances a serious break in the continuity of a line of treatment that had been laid out. The doctors that we have in mind were not only the medical officers of the various commands, but also a very considerable number of physicians in the ranks. This was fortunate for the efficient prosecution of the medical service, for the regiments were for the most part in scattered detachments, and the medical privates were available for detail to medical duty. A number of doctors were thus made more useful than they could have been had they remained in the ranks, but that fact did not abate the chagrin they must have felt at an unnecessary sacrifice of their own interests. But there was no complaint on the part of these doctors, whether regimental officers or privates. They all did their duty faithfully, efficiently, and cheerfully, and they are deserving of the highest praise. The National Guard is certainly to be congratulated on the character of its medical men.

MEDICAL FREEMASONS IN GREAT BRITAIN.

The *Lancet* for January 26th contains a letter from Mr. Thomas Dutton, the secretary of Æsculapius Lodge, of London, the members of which are all medical men, in which he makes a suggestion concerning a lodge now in process of formation in connection with St. Bartholomew's Hospital; also a letter from Dr. Francis E. Clarke, provincial deputy grand master of the

Freemasons of North Connaught, calling on medical men who are also members of the order to contribute to a fund for building a Memorial Masonic Hall in Carrick-on-Shannon, the late Surgeon-Major Parke's native town, as a memorial of that distinguished officer. In the same issue of the *Lancet* there is an editorial notice of a paper recently read by Mr. R. F. Gould before the Quatuor Coronati Lodge, entitled The Medical Profession and Freemasonry.

It appears from the *Lancet's* analysis that Mr. Gould, who is not himself a medical man, has been investigating the relative activity of men of various callings in life with regard to Masonry, and that as the result of his researches he maintains that "it is by the influence of brethren who have been, or are, practitioners in medicine or surgery, more than to the members of any other single profession, that Freemasonry has been shaped and molded into the form, or perhaps it would be best to say the system (or set of systems), in which we now possess it."

It seems that the Grand Lodge of England was established in 1717, and Mr. Gould says of it: "The Duke of Montague accepted the Grand Mastership in 1721, and the society rose at a single bound into notice and esteem. The first of our 'Noble Grand Masters' was a Fellow of the Royal College of Physicians (as was also the fourth of the series, the Duke of Richmond). The first Deputy Grand Master was Dr. John Beale, 1721; and the first initiate—after a Masonic torpor of some duration—was Dr. William Stukeley, whose admission took place in the same year."

Among the individual physicians and surgeons of eminence in the British Empire who have figured in Masonry in modern times, the *Lancet* mentions the following, taken from Mr. Gould's paper: Sir F. C. Daniel, R. T. Crucefix, John Havers, Thomas Joseph Pettigrew, Henry Hancock, J. Cooper Forster, Sir Erasmus Wilson, Alfred Meadows, W. Rhys Williams, Edward Jenner, Sir William Fergusson, and Sir James Y. Simpson.

The *Lancet* thinks it probable that there is hardly a lodge in England that does not include a doctor among its members, and adds that most of the London lodges have many medical brothers on their rolls. We think that equivalent statements would hold good of the United States; certainly it is not uncommon to see excellent Masonic work done by doctors.

MR. LAWSON TAIT AND HIS PROFESSIONAL BRETHREN.

A long dispatch from London published in the *Sun* a few days ago brings into prominence what seems destined to lead directly to the culmination of the feud that has cropped out every now and then between Mr. Lawson Tait, the great Birmingham surgeon, and some of his professional brethren belonging in London, particularly Mr. Ernest Hart. It is in the form of a pamphlet to the publication of which Dr. Cushing, of Boston, seems to have innocently spurred Mr. Tait on by publishing the following statement: "In the light of facts recently placed on evidence concerning Tait, his statistics have far less weight with the surgical world than was the case a year or two ago."

Mr. Tait wrote to Dr. Cushing to ask what the facts were to which he had alluded. In reply, Dr. Cushing rehearses a scandal to the effect that Mr. Tait had seduced one of his nurses, and then, after having pledged himself to support the illegitimate child of which he owned to being the father, refused after a time to continue such support. Mr. Tait then wrote back denying the whole story and impugning its relevance. In the course of this letter Mr. Tait says:

"As to the story, it is a lie, or rather a tissue of lies, from beginning to end. Two women, sisters, entered into a scheme to blackmail me; one a nurse dismissed for insubordination, and one on whom I had done ovariotomy, and they laid claim to £16,000 as hush money. They never got a stiver of that money, and the case never came to trial for the reason that you will see in the published account of it which I inclose. The case never came to trial, never a scrap of information appeared in the public press, much to my discomfort, but the plaintiff's story was spread abroad as a means of coercing me to pay hush money, and chiefly by members of my own profession residing in London. I stood firm to fight, as, unfortunately, too few men placed as I was do. The plaintiffs traded on the belief that a man in my position and as rich as I was would pay up rather than have my name tarnished. But I would have spent my last shilling, and my wife would have sold her wedding ring, before I would have been bled in such a way. The case collapsed after nearly two years of legal dodging, and I never had an opportunity of proving the utter falseness of the charges made against me. Your informant may not have known this, but I suspect he did. Dates would prove this."

Mr. Tait inclosed a photographed copy of the woman's retraction, duly witnessed, as follows: "I unreservedly withdraw all statements and suggestions at any time made by me or on my behalf that you ever assaulted me or took advantage of me in any way while I was under the influence of liquor or under any other circumstances. And I also unreservedly withdraw all other charges, imputations, and reflections at any time made by me against you."

Dr. Cushing, thereupon, as in honor bound, gave Mr. Tait the name of his informant, who turns out to be Mr. Ernest Hart, the editor of the *British Medical Journal*, now in India, and loyally offered to make any apology that Mr. Tait might require, and to give his testimony, if necessary, even in an English court. When Mr. Hart gets back to London we may perhaps be told how such a monstrous scandal got afloat.

MINOR PARAGRAPHS.

THE "DEVELOPMENT" OF INSANITARY CONDITIONS.

The bill lately introduced into the House of Representatives by Mr. Bartholdt, providing for the appointment of a commission to inquire into the subject of the pollution of rivers and other sources of water supply in cases in which the health of the people of more than one State may be endangered—this bill seems to be meeting with the very general approval of sanitarians, and doubtless its enactment would be a wise and beneficent measure. One of the sections, however, provides that at the next session of Congress the commission shall submit such suggestions as may seem desirable for the purpose of remedying any insanitary conditions that have been "developed" by its work. Surely this is not what the framer of the bill meant, for he can hardly intend that the commission shall go into the business of *developing* insanitary conditions; he has simply lapsed into sloppy English.

"MEDICO-LEGAL MEDICINE."

To judge by the heading of an address published in the *Medical Reporter*, of Calcutta, in the number for January 1st, this somewhat pleonastic phrase figured in the title of one of the sections of the recent Indian Medical Congress, but we take it for granted that the heading was so printed by our contemporary only by oversight.

ITEMS, ETC.

The Society for the Relief of Widows and Orphans of Medical Men of New Jersey was incorporated in 1882, and we learn that it has continued to grow both in influence and in membership. Since its organization 241 physicians of the State have become members, of which number 22 have died and 28 been dropped for various reasons, leaving at the present time 191 active members. The permanent fund amounts to $1,338.42, and it is intended to allow eventually small annuities to widows and minor children in cases of need. The amount already paid to the families of deceased members amounts to $2,478. The total cost of conducting the affairs of the society during the past year was $19.67.

A Lady Bacteriologist.—It is announced that Dr. Anna Williams has been appointed an assistant on Dr. Biggs's staff in the service of the Health Department of the City of New York.

Military Duty and the Professions.—The *Christian Register* says: "Dr. Baxter, examining surgeon during the civil war, in tabulating the results of his examinations, shows that, out of every 1,000 clergymen examined, 954 were unfit for military duty; out of every 1,000 journalists, 740; of physicians, 670; of lawyers, 544; while of farmers only 350 were thus disqualified."

The Late Dr. Alfred L. Loomis.—The secretary of the Medical Board of Bellevue Hospital has sent us the following, dated February 3, 1895:

"As instructed by the Medical Board of Bellevue Hospital, I forward to you the following resolutions:

"At a special meeting of the Medical Board of Bellevue Hospital held January 24, 1895, to take action on the death of Professor Alfred L. Loomis, M. D., LL. D., the following resolutions were entered on the minutes of the board:

"*Resolved*, that by the death of Dr. Alfred L. Loomis the members of the medical board lose a faithful and respected associate, the profession a brilliant and honored member, and the people a wise and vigilant public servant.

"*Resolved*, that the members of the medical board sympathize most deeply with his family in their sad bereavement.

"*Resolved*, that these resolutions be sent to the family and be published in the secular and professional press."

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from January 20 to February 2, 1895:*

Morris, Edward R., Captain and Assistant Surgeon, is granted leave of absence for twenty-one days, to take effect upon being relieved from duty at Fort Warren, Massachusetts.

Heyl, Ashton B., First Lieutenant and Assistant Surgeon, is relieved from duty at Columbus Barracks, Ohio, and ordered to Fort Thomas, Kentucky, for duty.

Lauderdale, John V, Major and Surgeon, will be relieved from duty in the Department of the East, to take effect upon the expiration of his present leave of absence, and will then report for duty at Fort Omaha, Nebraska.

Tilton, Henry R., Lieutenant Colonel and Deputy Surgeon General, is relieved from duty at Fort Omaha, Nebraska, and will report in person to the commanding general, Department of Dakota, for duty as medical director of that department, relieving Byrne, Charles C., Colonel and Assistant Surgeon General. Colonel Byrne, on being thus relieved, will report to the commanding general, Department of the East, for duty as medical director of that department.

Stiles, Henry R., First Lieutenant and Assistant Surgeon. The extension of leave of absence granted on account of sickness is still further extended two months on surgeon's certificate of disability.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending January 26, 1895:*

Norton, O. D., Passed Assistant Surgeon. Ordered to the Naval Laboratory and Department of Instruction, Brooklyn, N. Y.

Berryhill, T. A., Passed Assistant Surgeon. Detached from the Naval Laboratory and Department of Instruction and ordered to the Naval Hospital, Brooklyn, N. Y.

Hope, J. S., Assistant Surgeon. Ordered to examination preliminary to promotion. March 4, 1895.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Sixteen Days ending January 31, 1895:*

Austin, H. W., Surgeon. To proceed to New Bedford, Mass., as inspector. January 18, 1895.

The Medical Society of the State of New York, in session in Albany this week, has unanimously elected Dr. Roswell Park, of Buffalo, president for the ensuing year.

Society Meetings for the Coming Week:

Monday, *February 11th:* New York Academy of Medicine (Section in General Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private—Anniversary); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society, New York (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Maine Academy of Medicine (Portland); Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private).

Tuesday, *February 12th:* New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Society of the County of Rensselaer, N. Y.; Newark, N. J. (private), and Trenton, N. J., Medical Associations; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Northwestern Medical Society of Philadelphia; Practitioners' Club, Richmond, Ky.

Wednesday, *February 13th:* New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Societies of the Counties of Albany and Allegany (quarterly), N. Y.; Pittsfield, Mass., Medical Association (private); Franklin, Mass., District Medical Society (quarterly—Greenfield); Philadelphia County Medical Society.

Thursday, *February 14th:* New York Laryngological Society; Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

Friday, *February 15th:* New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *February 16th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Births, Marriages, and Deaths.

Died.

Strong.—In Cleveland, O., on Tuesday, January 29th, Dr. Jamin Strong, aged seventy years.

Letters to the Editor.

RAPID DILATATION OF THE CERVIX UTERI.

Lagrange, Ky., *January 17, 1895.*

To the Editor of the New York Medical Journal:

Sir: I have just read Dr. Edgar's paper in your issue of the 12th inst., on Duehrssen's Method of Deep Cervical Incision for Rapid Delivery, and it recalled a case in my own practice which I thought might be of interest to your readers. A negress, a primipara, aged eighteen, was pregnant seven or eight months.

I found her in the most violent convulsions, the convulsions following each other so rapidly as to be almost continuous. I began to give chloroform, introduced my finger, and soon got one finger into the os. I sent for my obstetrical case, and by the time it reached me, which was after nearly an hour, I had succeeded in introducing two fingers. In the meantime the case had been growing worse and each seizure seemed as if it would be the last. I opened my case of instruments with no hope of finding anything I could use, but picked up a large placental forceps. I looked at it and opened the blades several times in my hands, and found them very powerful, and it occurred to me in my desperation that they would dilate any cavity, so I quickly introduced them into the os and by a slow, steady pressure of twenty or thirty seconds, with intervals of ten or fifteen seconds, in less than ten minutes I had succeeded in dilating sufficiently to introduce my large forceps, and delivered in about half an hour. There was an immediate gush of an enormous quantity of blood. I passed my hand into the uterus and tore away the placenta. Then, holding my hand in the uterus, I had my assistant saturate a ball of cotton with tincture of perchloride of iron, the only hæmostatic I had, and introduced it. The uterus immediately contracted and all hæmorrhage ceased. The child was stillborn and no effort was made to resuscitate it. The mother remained in a comatose condition for several hours, when consciousness returned and she made a good recovery. The only damage was a slight laceration of the perinæum.

If you think this experience of a country doctor's, who must do what he can with what he may happen to have, will be of any benefit to your readers, I should be glad to have you use it.

John F. Taylor, M. D.

TABLES OF INTESTINAL OPERATIONS.

Rochester, Minn., *February 2, 1895.*

To the Editor of the New York Medical Journal:

Sir: In the issue of your *Journal* for January 19, 1895, under the heading of Tables of Intestinal Operations, Dr. F. H. Wiggin writes a letter in which he states that a table of intestinal anastomosis used by us in an article printed in the January number of the *Annals of Surgery* is similar to the one read by him in October, 1894, and printed in your *Journal* in December, 1894, and implies that we have copied his table without due acknowledgment. In reply, we would say that the table in question was furnished us by Dr. J. H. Murphy, and that we so stated in our paper, from which we quote the following:

"Through the kindness of Dr. Murphy we append herewith a tabulated statement," etc., and, further, that this table was sent to us by Dr. Murphy in September, and that our paper as printed, including the table, was in the hands of the editor of the *Annals of Surgery* in September (although not printed until January), one month before the paper of Dr. Wiggin was read, and more than two months before it was published.

W. J. Mayo, M. D.,
C. H. Mayo, M. D.

THE MORPHINE HABIT IN CHILDREN.

Brooklyn, *February 1, 1895.*

To the Editor of the New York Medical Journal:

Sir: I am desirous of adding to the clinical literature of morphinism in children. If any reader of your journal has met with a case, and will furnish me full details, I shall appreciate the favor and give due credit.

J. B. Mattison, M. D.

Proceedings of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Eighth Annual Meeting, held in Washington, May 29, 30 and 31, and June 1, 1894.

The President, Dr. George Chismore, of San Francisco, in the Chair.

(*Concluded from page 152.*)

The Question of Surgical Interference in Tuberculous Kidney.—Dr. John P. Bryson, of St. Louis, read a paper on this subject. The author stated that of a hundred and seventy-four cases observed by him sufficiently to justify the positive diagnosis of tubercular disease of the urinary organs, only eighteen had given unmistakable evidences of involvement of the kidneys. This statement was, of course, intended to apply only to cases of surgical as distinguished from the more generalized tuberculosis known as miliary. Surgical interference in tuberculous disease of the kidneys had been recommended (1) to clear up the diagnosis and remove possible stone; (2) to free sloughing portions of the renal substance; (3) to drain the renal pelvis and avoid the infection of the lower urinary passages by diverting the stream of tuberculous urine by the loin; (4) splitting the capsule to avoid extensive sloughing in cases where the onset was sudden and large portions of the organ were threatened; and (5) nephrectomy in cases where the kidney was sufficiently disorganized by strumous disease to be no longer useful as an excretory organ, and but threatened the general health.

The complexity of the problem of surgical tuberculosis, the fact that experiment was not an adequate substitute for experience, and the knowledge that here we were dealing with organs so essential to the maintenance of life, rendered it impossible to study these propositions otherwise than by trial; that was to say, by the light of what had actually been done clinically, and the results that had been thus obtained. The researches of Morris and others showed that in a little more than one half the cases examined, both kidneys had been diseased, though not to the same extent. This fact was sufficient to warn against any serious interference with the diseased organ, excepting in cases of urgent necessity. Not only might the second kidney be diseased, but it might be absent, or other tuberculous foci might exist elsewhere in the body, which, though latent, were ready to become active sources of infection at any moment. The author stated that merely draining a tuberculous cavity in any part of the body had not proved a satisfactory procedure in his hands, even where the drainage had been complete, or combined with washing and the application of antiseptics. If we might reason by analogy from similar conditions of the testis, splitting the capsule in those cases of sudden onset with rapid swelling, in order to prevent considerable destruction of gland tissue, was not so effective as rest, combined with emollient and anodyne local applications. In one case of this kind coming under the author's observation, in which the capsule of the kidney had been split, the patient had died in a fortnight from general tuberculosis. Where the symptoms of stone were fairly clear, an operation for its removal seemed to be justifiable; but the danger of lighting a chronic into an acute renal tuberculosis was too great to justify an operation for the purpose of clearing up a doubtful diagnosis, when intelligent and patient watching would surely, in the great majority of cases, solve the problem. To remove a stone; to open an abscess that was not adequately draining by the ureter, and thus relieve fever and wasting suppuration; to free sloughing portions of the kidney, and thus prevent infection of the pelvis and circumrenal tissues, and, when we could satisfy ourselves reasonably well of the adequacy of the opposite kidney, to remove a kidney that was disorganized and causing wasting by suppuration, seemed to be plain surgical duties; but to remove or even to incise and drain any portion of a kidney with the object of removing a focus that was likely to infect the body was not, in the writer's opinion, a justifiable proceeding.

Dr. Bangs said that, after a good deal of experimentation in this class of cases, he had come to the conclusion that good hygiene was the chief if not the only factor in the cure of tuberculosis.

Dr. Keyes expressed the opinion that in these cases the surgeon should either stand aside or else play the physician, and only operate when an emergency demanded it.

Dr. Belfield said that he thoroughly believed in non-interference in tuberculosis of the genito-urinary organs.

Dr. Bell said that in cases where the tubercular lesions were limited to the bladder and prostatic region he had had very satisfactory results from opening the bladder above the pubes, and then instituting prolonged drainage after cauterizing the diseased areas.

The President said that he had become very conservative as regarded the use of instruments in tuberculous patients.

A Case of Cystitis and Nephropyosis due to the Colon Bacillus, requiring Nephrectomy.—Dr. F. Tilden Brown, of New York, reported a case of this affection. The patient had been a male, aged forty years, who in 1888 had been treated for cystitis. Upon leaving the hospital the symptoms of cystitis had been replaced by those of pyelitis or pyelonephritis; in this condition he had continued for some years, during which time he had steadily grown worse. On his readmission to the hospital in January, 1894, there had been pain and resistance on palpation on the left side, and well up under the border of the ribs an indurated mass could be felt. In February, 1894, an operation had been undertaken, and on exposing the left kidney it had been found to consist of a large, thin-walled sacculated bag filled with fluid. Nephrectomy had accordingly been done, and the patient had made a good recovery. In the course of the operation the renal artery had been ruptured, producing alarming hæmorrhage.

Cultures made from a sinus of the removed kidney had yielded a pure growth of colon bacillus. Cultures of the urine, drawn with a sterilized catheter six weeks after the operation, and again three months after the operation, had also yielded pure cultures of the same bacillus. In conclusion, the reader said that the title of this report was purposely made assertive as regarded its ætiology, rather with the intent to elicit discussion upon the importance or non-importance of the *Bacillus coli communis* as a pathogenic agent in urinary diseases, and because this particular case afforded unusual facilities for positive deductions.

Dr. R. W. Taylor exhibited a colored drawing showing a mixed malignant growth of the testis.

Dr. Bryson said that tumors in the region of the testis or cord were seldom typical; they were apt to be composed of mixed elements, and in the treatment of these cases radical measures were usually indicated.

Dr. Bangs said that in one case of carcinoma of the testis that had come under his observation the inguinal glands had not been removed, and two years later there had been a recurrence of the disease in the kidney on the affected side; the inguinal glands had not been involved.

Dr. Bryson said that in one case of sarcoma of the testis there had been a recurrence of the disease in the intra-abdominal glands. The inguinal glands had escaped.

Dr. Keyes said that in a number of these mixed growths of the testis that he had seen the recurrence in each instance had been in the retroperitoneal glands.

Two Cases of Syphilis bearing on the Question of the Period during which the Disease is Communicable.—Dr. James Bell, of Montreal, reported two such cases: 1. A case of transmission of syphilis from the male two years after the disappearance of all lesions. The patient had presented himself some years ago with a well-marked and characteristic primary sore, followed by typical skin, glandular, and throat symptoms. He had at once been placed on specific treatment, and this had been faithfully continued for over two years, at which time the man had had no further evidences of the disease. Two years and eight months after the disappearance of the initial lesion the man had been married, and about two months later his wife, who had been in every respect above suspicion, had had unmistakable symptoms of syphilis. The reader said he regarded this case as one of blood inoculation.

2. Conception occurring during the period of incubation of the chancre in the male parent; the product being a perfectly healthy non-syphilitic child. The patient had been a man who had exposed himself to inoculation in the latter part of October, 1891. Four days afterward he had been married. In January, 1892, he had presented himself with a large, indurated chancre and fully developed secondary symptoms. His wife had ceased to menstruate a week before marriage, and had not menstruated since. She had shown other signs of pregnancy and her child had been born about the middle of August, 1892. Conception must therefore have occurred during the interval

which had elapsed between the inoculation and the appearance of the chancre. The woman had been at once made aware of the grave condition of affairs by her husband and had been put on specific treatment. She had remained in good health, and had been delivered at full term of a fine, healthy child. Up to the present time neither the mother nor the child had shown any signs of syphilis.

Dr. TAYLOR said that in the first case reported there had possibly been some extra-genital source of infection. The woman might have been infected by some other member of the family. In one case that he had seen a servant had been the source of [infection]; in another, a child. Or the infectious period of the disease might have persisted for an unusually long time. The blood was the least potent agent in the infection of syphilis. The second case reported Dr. Taylor said he regarded simply as fortuitous.

Dr. JUDKINS referred to a case in which a man had married four months after the appearance of the initial lesion. Two months later his wife had shown unmistakable symptoms of syphilis, and since then she had aborted five times.

Dr. KEYES said that in the case reported the man had married twenty-eight months after the appearance of the chancre. Clearly he had not yet been out of the high-road of possible infection, no matter what the treatment had been.

Dr. BANGS said he had arrived at the conclusion that it was not safe to permit marriage in these cases until after three years had elapsed.

Officers for the Ensuing Year were elected as follows: President, Dr. L. Bolton Bangs, of New York; vice president, Dr. Francis S. Watson, of Boston; secretary and treasurer, Dr. W. K. Otis, of New York; member of the council at large, Dr. J. A. Fordyce, of New York. It was decided to hold the next meeting at the Clifton House, Niagara Falls, during the last week in May, 1895.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

SECTION IN GENERAL SURGERY.

Meeting of November 9, 1894.

Dr. JOHN B. ROBERTS in the Chair.

(Concluded from page 58.)

The Antitoxine Treatment of Diphtheria.—Dr. GEORGE A. MUEHLECK read a paper on this subject in which he said that the employment of pure cultures of pathogenic micro-organisms and their toxic products for purposes of conferring immunity, as well as for combating certain infectious diseases, was comparatively of recent date. The history of the labors of Pasteur, Koch, Kitasato, and others in this field had become common property for the entire medical world, so that a mention of them here would be superfluous; but their work had opened up new avenues of investigation and research which had already yielded practical results, as it seemed, of the most far-reaching consequence, and a promise of still greater achievements in the future. The speaker referred here especially to the work of Behring, Ehrlich, Brieger, Wernecke, Boer, Schuetz, Kitasato, Wassermann, Kossel, Aronson, and others in Germany, and to that of Roux and Yersin in France, and Tizzoni in Italy, as a result of which the doctrine of conferring immunity against certain infectious diseases had been further elucidated and experimentally confirmed on animals at least. Behring and his co-laborer had been the first to show that the blood or milk of animals so treated had the power, when injected hypodermically, or into the peritoneal cavity, to confer immunity upon other animals or to protect them from the consequences of inoculation of virulent cultures of pathogenic micro-organisms, or intoxication by the products of the same species with which the first animal had been made refractory. In other words, the milk and blood-serum had been endowed with antitoxic properties which had the power to neutralize the toxic action of the virulent cultures and their products. This neutralization of the toxic by the antitoxic principle took place even outside of the animal economy when they were mixed in a test-tube in obedience to the laws of proportion. Animals which had been made ill by the injection of fatal doses of virulent cultures of their filtrates were restored to health if a sufficient quantity of antitoxic serum was injected within a stated time. Of the infectious diseases which had been the subjects of this line of investigation, and in which the results had been most encouraging, tetanus and diphtheria, and, to some extent, streptococcus infection, were pre-eminently to be mentioned. Of these, however, only diphtheria was relevant to this paper; the principles involved were, however, the same in all. Behring's method of securing the antitoxic serum of diphtheria for therapeutic purposes was similar to that now generally accepted by all investigators—by injecting hypodermically into an animal gradually increased doses of attenuated dead cultures of the Klebs-Löffler bacillus in order to effect a certain degree of basal immunity. Subsequently this basal immunity was intensified by injecting increased quantities of living and virulent cultures.

This method was based upon the fact already established by the investigations of Koch and Kitasato, that specific toxine and antitoxine neutralized each other immediately outside of the living organism when mixed in the test-tube in obedience to the law of proportion. Formerly toxine and antitoxine had been injected separately, but owing to variations for absorption exact results could not be obtained. Now they were injected together. For the practical application of the method it was best to use a test toxine the immunity-conferring power of which had been tested, and which was derived from a mature bouillon culture to which had been added 0·5 per cent. of phenol. Of the solution used by Behring and his colaborers as a test poison, 0·3 c. c. represented the minimal fatal dose of 1,000 grammes body-weight; 0·8 c. c. of this solution was injected into an animal weighing 200 to 300 grammes, together with the substances to be tested for the antitoxic power in decreasing proportions.

For example, 0·4 c. c., 0·3 c. c., 0·2 c. c., etc. The result could be determined approximately in twenty four hours, and with accuracy in forty-eight hours, by the presence or absence of local œdema, provided the proportions of the material to be treated for its antitoxic power had been properly measured. The quantity necessary to neutralize 0·8 of this test toxine would vary according to the amount of antitoxine present. These injections were made *seriatim*, and always gave absolutely reliable results. As a final result of their labors these investigators had animals of whose serum a milligramme and a half, or of whose milk 0·075 milligramme, were sufficient to neutralize 0·8 c. c. of this normal toxic solution. A serum was said by Behring to represent 1 antitoxine normal if 1·0 c. c. to 100 body-weight was sufficient to neutralize 0·8 c. c. of this normal toxic solution—that is, if 0·8 c. c. of this toxic solution was injected into a medium-sized guinea-pig (about 500) it would remain well if normal antitoxic serum in the proportion of 1 to 100 body-weight (about 5 c. c.) had been injected a quarter of an hour previously. In this manner serum had been obtained representing sixty and more antitoxine normals.

Roux, who had begun his experiments in 1891, used for purposes of immunity a test poison 0·1 c. c. of which would kill a guinea-pig of 500 grammes in from twenty-four to forty-eight hours. His test poison was attenuated with a solution of iodine. He gradually increased the dose by diminishing the proportion of iodine. After several weeks it was given pure. In this way very powerful antitoxic serum, with a power of immunity of 1 : 50,000, was obtained.

Since the beginning of the year 1894 antitoxic serum had been extensively used in cases of diphtheria in the hospitals of Berlin and Paris. Henoch, Heubner, Koch, Kossel, and others testified to its absolute harmlessness even in doses of 90 c. c. In no instance had any irritation of the kidneys or any unfavorable influence on the general health been observed. In six Berlin hospitals 220 cases had been treated, with 76·4 per cent. of recoveries. Among these had been 67 tracheotomies, with 37 recoveries—51·1 per cent. The beneficial effect of the treatment had been most apparent the earlier it had been begun. Of six treated on the first day, all had recovered; of 66 treated on the second day, 64 had recovered—97 per cent.; of 29 treated on the third day, 25 had recovered—86 per cent.; of 39 treated on the fourth day, 30 had recovered—77 per cent.; and of 23 treated on the fifth day, 13 had recovered—56 per cent.

Roux, of Paris, reported a mortality of 24 per cent. in the *Maternité*, while the mortality in the Trousseau Hospital, where no serum had been used, had been 60 per cent. during the same epidemic.

Dr. Muehleck then reported four cases treated by this method, and said that he presented them for the consideration of his colleagues, being well aware that their number was too small to permit of any definite conclusion as to the value of the serum-therapy of diphtheria, all the cases, moreover, having been treated, in addition to the serum-therapy, according to the generally accepted rules of practice. Nevertheless, the cases here presented had shown some features so striking that they had appeared to be of interest. After each injection a rapid fall of temperature had been noted, as would be seen. This reduction, however, lasted only twenty-four hours, but when it rose again, it never reached its original degree. In Case I, where two injections had been made, the same phenomena had been observed after each. At the same time a marked amelioration in the difficulty of breathing had been noted. The heart had been much less favorably influenced, being often irregular and weak. Nevertheless, he felt that if a sufficient quantity of serum had been at his disposal, and repeated injections could have been made, the toxine still remaining in the circulation might have been more effectually neutralized and its depressing effects on the heart avoided. The behavior of the membranes had been peculiar, inasmuch as they had not seemed to thrive; they had failed to spread, and in from twenty-four to forty-eight hours after the injection they had assumed a fatty, pultaceous appearance, and in each instance had disappeared within a week. The cases as a whole had run a milder course. The speaker did not think that the cases could be called mild ones, since the two children who had not been treated with antitoxine serum had died. The continued presence of probably virulent Klebs-Löffler bacilli in the throats of two of the other children would, he thought, indicate that antitoxine serum did not kill the micro-organisms themselves, but merely neutralized their poisonous products, and that consequently isolation and proper disinfection of the throat were indicated as heretofore.

Dr. H. A. Hare said he had had the honor of being invited to be present at the Municipal Hospital when the inoculations had been made by Dr. Fischer, of New York, but thought he could add very little to Dr. Muehleck's report. There were, however, several things which had impressed him very forcibly at the time of making these experiments, which he had not had time to clear up. One was that the cases had been desperate ones, fairly rotten with sepsis; one could scarcely believe it possible that children could survive such profound poisoning. Some of them had been simply gasping for air, not from obstruction, but from prostration of the vital powers. Some had had as much as sixty per cent. of albumin in the urine, the pulse had been indistinct and scarcely to be found at the wrist; while the most careful auscultation had been needed to distinguish the heart sounds. The membranes had spread from the throat to the lips and the nose. Such patients had been among those that had received the injections. What the result was it was too soon to say, but he had been impressed with the thought that the test in these cases could only end in failure. If the treatment could be given at an early stage, before the kidneys, the heart, and other important organs had become so seriously involved, it might be useful. Dr. Fischer had thought the cases desperate, but declared that the severe cases had been the most favorable for the test. In one case he had used an Aronson's solution, which was three times as strong as Behring's. The speaker believed that one of the patients who had received the antitoxine was still alive and in about the same condition; the others he had not heard from.

Now, if, as everybody believed, diphtheria was primarily a local disease, caused by infection with the bacillus whose growth caused the development of toxine, he confessed that he would rather take his chances with the toxine than to inject any amount of the immunizing serum into his blood. The child had to struggle not only against the toxine of the Klebs-Löffler bacillus, but also against the toxines of the other bacilli, which caused so-called pseudo-diphtheria, and the ordinary bacteria of inflammation and suppuration, and the use of antitoxine might, for all we knew, increase the strain on the organism.

Dr. Carl Frese gave his experience with the antitoxine. It had first been tried upon a patient of Dr. Woodward's, in a family where three had been attacked by diphtheria. The child had been in a desperate condition and had died three hours after the injection. Cultures had been made and the Klebs-Löffler bacillus had been found; also staphylococci and streptococci. The third child had just begun to get sick, and nothing had been seen of false membrane in the throat. In that case the child had been exposed to the infection. One tenth of a bottle of the antitoxine had been used, and the patient had recovered from her malaise without any membrane forming. Two other cases were cited by Dr. Frese in which the antitoxine had been used with good results.

Dr. Edwin Rosenthal said that it had been with peculiar care that he had followed Dr. Muehleck's experiments with their satisfactory results. In the statistics presented on the treatment of diphtheria by antitoxine, the greatest proportion of recoveries had been shown in cases where the treatment had been begun on the first day of the disease. These statistics had been classified peculiarly, and had reference to the number of days during which the patients had been ill before the treatment had been begun. They had no reference to the gravity of the disease or to the complications. As such, their value must, in some way, be diminished, for we all knew that cases of diphtheria seen early enough could be so treated that the infection became modified, and recovery was the rule. For this reason the old method of treatment might be classed as equally good; and many a physician, notably Dr. A. Klein, who had seen many cases of diphtheria, had a record of no deaths. He believed that, in those desperate cases—such a one as described by Dr. Hare—the real efficacy of antitoxine could be tested. But, nevertheless, the cases reported by Dr. Muehleck had proved that its use prevented the full development of the disease, and if developed, decreased the gravity of the symptoms to a remarkable extent.

In the statistics of the cases in which tracheotomy had been performed, he could not see anything remarkable, as he thought Dr. Wharton's statistics of the present plan of treatment equally good; however, if, with one or more injections of antitoxine, the course of such cases could be shortened, we had assuredly a good remedy. In Dr. Muehleck's paper no mention had been made of patients with laryngeal diphtheria intubated and treated by antitoxine. All the statistics he had seen on this special subject had recorded no deaths; a record which certainly placed antitoxine foremost as a remedy. The first case in which Dr. Muehleck had used the injections had been one of laryngeal diphtheria, and the speaker had been present when he had made his first injection, using Aronson's serum, manufactured by Schering. Though the stenosis had been marked, intubation had not been practiced, and on the second night, when suffocation had appeared imminent, Dr. Muehleck, at the suggestion of Dr. Klein, had postponed intubation, but had given a second injection; and this patient had recovered. This recovery had been deemed by Dr. Muehleck to be due to the employment of the remedy, for no other special means had been employed; surely another demonstration proving its efficacy.

Dr. A. **Klein** said that the cases referred to by Dr. Rosenthal had been mostly mild ones, and the patients would have recovered under any ordinary treatment. The cases he had seen with Dr. Muehleck had been of a different type entirely. In the first one, stenosis had been so marked that intubation or tracheotomy had been considered, but in order to give the antitoxine a fair trial it had been decided to give a second injection and to wait for surgical interference until the symptoms grew more urgent. The patient, as reported, had recovered.

In addition to the statistics referred to, which were in favor of antitoxine, the speaker mentioned thirty-five patients who had been treated by Dr. Bokai in Budapest with antitoxine *exclusively*, nineteen of whom had had the severest type, sixteen having had to be intubated. Of the thirty-five patients eight had died; all the intubated ones had recovered.

Dr. D. **Braden Kyle** said that he could add nothing to the observations already cited as to the clinical effects of antitoxine, but he might add something in regard to the examination of cases for the bacilli. What had been said in regard to the presence of other organisms was quite true. In all the cases he had studied, where streptococci had been present, the disease had been more malignant than if the staphylococci had been present; as a rule, many germs were present besides the Klebs-Löffler bacillus. The germ of false diphtheria (von Hoffmann's) was so much like the germ of true diphtheria that it might be necessary to resort to the inoculation of animals to make the diagnosis. If inoculations were made on blood-serum and incubated, the first growth to appear on the surface of the serum was, as a rule, the Klebs-Löffler bacillus, and in most cases the diagnosis could be based on stains from these growths; only in the older cultures was there any marked difference.

Aronson's serum was of several degrees of strength; one of the preparations, labeled diphtheria antitoxine, was not intended for the treatment of diphtheria, but for the purpose of securing immunity. Dr. Kyle exhibited a number of microscopic slides showing the germs from tubes eighteen hours after inoculation, and also from an older growth, from which the marked variance in form could be observed.

Dr. T. **Xainé** remarked that, with regard to the so-called pseudo-bacillus, some German pathologists denied that there was any difference. Some French authorities, on the other hand, affirmed that there was a distinction; that the pseudo-bacillus was shorter and grew more rapidly in culture media. It was also asserted that it might be found in the throat during perfect health, also in the throats of individuals living in communities where there never had been diphtheria. It was said that the pseudo-bacillus was found in fifteen or twenty per cent. of healthy children, and that the virulent bacillus might lose its virulence; but by culture in suitable media this might be restored. The speaker had injected into the trachea of a rabbit 1 c. c. of a solution of the Klebs-Löffler bacillus bouillon culture. The rabbit had then had symptoms of dyspnœa. He had had a beautiful membrane throughout the larynx down to the bifurcation of the trachea. On examining cultures of the bacilli, Dr. Xainé had found that they had regained their virulence and former thickness. He thought that in New York physicians did not recognize any distinction between the true and false diphtheritic bacillus, and considered them all as diphtheria germs. He thought that Dr. Abbott also did not believe that there was any difference between the true and false diphtheria bacillus. As regarded streptococci and staphylococci, they were always found in the mouth, and their presence only indicated a double infection.

Dr. **Muehleck** thought that every experienced physician would agree with him that there were very few chapters in medicine more disappointing than that on the treatment of diphtheria. In fact, the treatment until now had amounted to very little, it being always a question in his mind whether the patient had not been more injured than benefited by the attempt to make applications of disinfecting solutions to the throat in the case of a struggling child with a weak heart. The results from surgery had been even more desperate. Anything, therefore, that would afford a ray of hope should be welcomed with delight. The cases he had seen were too few for a conclusive opinion, but the results from Europe were very favorable. Virchow, who was usually very conservative in such matters, had indorsed this treatment. The prognosis depended largely upon the day of the disease when the treatment was begun, as he had already said in his paper. Behring and Prudden had shown that sepsis by streptococcus invasion was common in the later stage of the disease. The former distinctly stated that the antitoxine was powerless against such infection.

Book Notices.

Manual of Practical Morbid Anatomy. Being a Handbook for the Post-mortem Room. By H. D. **Rolleston**, M. A., M. D., F. R. C. P., Fellow of St. John's College, Cambridge, etc., and A. A. **Kanthack**, M. D., M. R. C. P., Lecturer on Pathology at St. Bartholomew's Hospital. Cambridge: The University Press, 1894. Pp. xix–240. [Price, $1.60.]

The authors state that the object of this handbook is to indicate the preferable incisions and the most convenient way of examining the organs of the body, as well as to point out the morbid changes to be looked for. The details of a necropsy are fully described, and the description of pathological conditions is sufficiently complete to render the work a useful one to those likely to have post-mortem examinations to make.

Les Gaz du sang. Applications à l'hygiène expérimentale. Par N. **Grehant**, professeur de physiologie générale au Muséum d'histoire naturelle, etc. Paris: G. Masson, 1894. Pp. 7 to 166. [*Encyclopédie scientifique des aide-mémoire.*]

The first portion of this work contains a description of the procedures that are employed in the author's physiological investigations. He describes the mercury-pump, Golaz's tube, and an instrument, the grisoumeter, invented by Coquillion and modified by the author, that permits of the recognition of the presence of a combustible gas in the blood or of a trace of carbon dioxide in confined air.

In the second part he explains the law of the absorption of carbon dioxide that he has discovered, and indicates some interesting applications of this law to the hygiene of heating and ventilation. He then gives some data regarding the determination of fire-damp in mines.

A Handbook on Disinfection and Methods for the Prevention of Contagious Diseases. By E. T. Duke, M. D., Secretary of the Board of Health, Cumberland, Md. Cumberland, Md.: Harry K. Duke & Co., 1893. Pp. 3 to 56.

The author has endeavored to make this a plain, concise, and practical work that will appeal to persons of only a general education. Brief directions for the use of disinfectants, the care of the patient, the conduct of the nurse, and the detail of the sick-room and the house are given; then follow sections on disinfection in various communicable diseases. The author has not aimed to tell anything new, but rather to present what is known in a form in which it may be turned to practical account readily.

Text book of Anatomy and Physiology for Nurses. Compiled by Diana Clifford Kimber, Assistant Superintendent, New York City Training School, Blackwell's Island, N. Y., etc. New York: Macmillan & Co., 1894. Pp. xvi–268. [Price, $2.50.]

The author's experience as assistant superintendent to two nurses' training schools has undoubtedly proved of value to her in indicating what a nurse should be taught in the important subjects of anatomy and physiology.

This volume is arranged in twenty chapters that comprise thirty-seven lessons, and seems to include such information as will be useful to the nurse in fulfilling her duties.

BOOKS, ETC., RECEIVED.

Allgemeine Physiologie. Ein Grundriss der Lehre vom Leben. Von Max Verworn, Dr. Med. et Phil., Privatdocent der Physiologie an der medicinischen Facultät der Universität Jena. Mit 268 Abbildungen. Jena: Gustav Fischer, 1895. Pp. xi–584. [Price, 15 marks.]

Allgemeine Pathologie oder die Lehre von den Ursachen, dem Wesen und dem Verlauf der krankhaften Lebensvorgänge. Von Dr. Ernest Ziegler, Professor der pathologischen Anatomie und der allgemeinen Pathologie an der Universität Freiburg im Breisgau. Achte neu bearbeitete Auflage. Mit 458 theils schwarzen, theils farbigen Abbildungen und einer Tafel in Chromolithographie. Jena: Gustav Fischer, 1895. Pp. xii–746. [Price, 11 marks, 50 pf.]

Surgical Pathology and Therapeutics. By John Collins Warren, M. D., Professor of Surgery in Harvard College, etc. Illustrated. Philadelphia: W. B. Saunders, 1895. Pp. 7 to 832. [Price, $6.]

Clinical Lectures and Essays on Rickets, Tuberculosis, Abdominal Tumors, and Other Subjects. By Sir William Jenner, Bart., G. C. B., M. D., Lond., and F. R. C. P., D. C. L. Oxon., LL. D. Cantab. and Edin., F. R. S., President of the Royal College of Physicians from 1881 to 1888, etc. New York: Macmillan & Co., 1895. Pp. xii–329. [Price, $4.]

Notes on the Newer Remedies. Their Therapeutic Applications and Modes of Administration. By David Cerna, M. D., Ph. D., Demonstrator of Physiology and Lecturer on the History of Medicine in the Medical Department of the University of Texas, etc. Second Edition, enlarged and revised. Philadelphia: W. B. Saunders, 1895. Pp. 11 to 253. [Price, $1.25.]

Syllabus of Gynæcology, based on the American Text-book of Gynæcology. By J. W. Long, M. D., Professor of Gynæcology and Pædiatrics in the Medical College of Virginia, etc. Philadelphia: W. B. Saunders, 1895. Pp. 4 to 133. [Price, $1.]

Laboratory Guide for the Bacteriologist. By Langdon Frothingham, M. D. V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated. Philadelphia: W. B. Saunders, 1895. Pp. 3 to 61. [Price, 75 cents.]

Report. Long Island Home, 1894.

Proceedings of the Medical and Surgical Society of the State of Mississippi at its Organization, May 23, 1894.

Vital Statistics of the City of Binghamton, N. Y. Annual Statement for the Year ending December 31, 1894.

Hospitals for the Insane. Their Scope and Design. By Edward F. Wells, M. D. [Reprinted from the *Journal of the American Medical Association.*]

Description of an Artificial Eye intended for the Study of Ophthalmoscopy and the Objective Determination of Ametropia. By Charles A. Oliver, M. D. [Reprinted from the *American Ophthalmological Society Transactions.*]

History of a Case of Indurated (Hunterian) Chancre of the Eyelid. By Charles A. Oliver, M. D. [Reprinted from the *Codex Medicus Philadelphiæ.*]

Appendicitis, with Especial Reference to its Diagnosis and the Indications for Operation. By W. B. Van Lennep, M. D. [Reprinted from the *Hahnemannian Monthly.*]

A Review of Six Interesting Pathologic Cases. By E. R. Axtell, M. D. [Reprinted from the *Medical News.*]

Multiple Neuritis, with the Development of Unilateral Facial Paralysis Late in the Course of the Disease. By J. T. Eskridge, M. D. [Reprinted from the *Medical News.*]

"Aural Massage" by Condensation and Rarefaction of the Air in the External Meatus and Middle Ear. Its Value in the Treatment of Various Diseases of the Ear. By Laurence Turnbull, M. D. [Reprinted from the *Medical News.*]

Some Additional Studies upon the Clinical Value of Repeated Careful Correction of Manifest Refractive Error in Plastic Iritis. By Charles A. Oliver, M. D. [Reprinted from the *University Medical Magazine.*]

Neudorfer's Method of Amputating Extremities, with a Report of Two Thigh Amputations. By A. H. Meisenbach, M. D. [Reprinted from the *Annals of Surgery.*]

Atlas of the Diseases of the Skin, in a Series of Illustrations from Original Drawings, with Descriptive Letterpress. By H. Radcliffe Crocker, M. D., F. R. C. B., Physician to the Department for Diseases of the Skin, University College Hospital, etc., London. Fasciculi I to VII. Edinburgh and London: Young J. Pentland. New York: Macmillan & Co., 1895. [Price, $6 each part.]

Die Funktion der Knaueldrüsen des Menschen. Von P. G. Unna. [Sonderabdruck aus *Deutsche Medizinal-Zeitung.*]

Basophiles Kollagen, Kollastin und Kollacin. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Elastin und Elasein. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Ueber Protoplasmafarbung nebst Bemerkungen über die Bindegewebszellen der Cutis. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Die spezifische Farbung des Epithelprotoplasmas. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Die spezifische Farbung der glatten Muskelfasern. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Die Farbung der Epithelfasern. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Die spezifische Farbung des Kollagens. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Die spezifische Farbung der Mastzellenkornung. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Naturliche Reinkulturin der Oberhautpilze. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Die Darstellung des Hyalins in der Oberhaut. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Hyalin und Kolloid im bindegewebigen Abschnitt der Haut. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Die Hand- und Fingerekzeme in der Armenpraxis. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Adeps lanae in der Praxis. Von P. G. Unna. [Sonderabdruck aus *Monatshefte für praktische Dermatologie.*]

Reports on the Progress of Medicine.

PHYSIOLOGICAL CHEMISTRY.

By ERNEST ELLSWORTH SMITH, Ph. D.

The Influence of Alum, etc., on Digestion.—It is generally believed that aluminum compounds, which have been used extensively in the adulteration of flour and in baking powders, both impede digestion and have an injurious effect on the digestive organs. In a recent series of experiments by Bigelow and Hamilton (*Jour. of the Amer. Chem. Soc.*, 1894) the influence of these compounds was studied, not only upon the digestive action of pepsin and hydrochloric acid, but also upon artificial digestion in pancreatic juice. Alum interfered materially with the action of the gastric juice, but the pancreatic juice effected the digestion of the remaining portion of food, which should have been digested by the pepsin. The same was true of the digestion of matters containing aluminum hydroxide. The action of aluminum phosphate was quite different, however, for notwithstanding the supposed insolubility of this compound, ten or twelve per cent. of the albuminoids which were digestible in the presence of alum or aluminum hydroxide appeared to be insoluble in the presence of an equivalent amount of the phosphate.

The Chemical Pathology of Uræmia.—In a recent experimental study of uræmia, Hughes and Carter have contributed to the pathology of this important condition (*Amer. Jour. of the Med. Sciences*). They conclude that there is one poison, present alike in uræmic human blood, in dropsical effusions in uræmia, and in dog's blood in experimental uræmia; and that this poison is not one of the ordinarily recognized constituents of the urine, as generally believed, but one whose nature or even existence has not before been recognized. The facts that its action is much lessened after subjection to moderate heat, and that it is not readily dialyzable, seem to indicate that the poison is an albuminous body; while clinical evidence indicates that it is not a constant constituent of the blood, but produces the uræmic condition by accumulation, owing to the inability of the kidneys to excrete it, or more rarely by a sudden and enormous production. The order in which serums stand as to their toxicity, proceeding from the most toxic to the least, is, man's, the dog's, the horse's. This suggests to the writers that the origin of the substance is to be traced to the character of the food, which is more nearly carnivorous with man and the dog and purely herbivorous with the horse, and that its production takes place somewhere in the digestive tract.

The Influence of Massage on Metabolism.—Bendix has found (*Zeit. f. klin. Med.*, xxv) an increase in both the volume of urine passed during periods of massage treatment and the absolute amount of nitrogen excreted. The periods extended through several days to a week and the results obtained were compared with fore and after periods of equal duration, during all of which time the subject was in nitrogenous equilibrium. There was a diminished separation of fat in the fæces during the massage period, indicating better absorption from the alimentary tract.

Lactic Acid in the Stomach.—J. Boas has recently applied a new method of estimating the presence and quantity of lactic acid (*Münchener med. Wochenschrift*, 1893, No. 43) to the study of the gastric contents of normal and diseased individuals at varying intervals after the ingestion of the test meal (*Zeit. f. klin. Med.*, xix), and finds that notwithstanding stagnation from motor insufficiency and diminished hydrochloric-acid production, lactic-acid formation does not occur except in the presence of a third factor which is generally supplied in cases of carcinoma of the stomach. When positive, therefore, he considers the test of diagnostic value in doubtful cases of this kind, but not contraindicative when negative.

Respiratory Products in Diabetes Mellitus.—Weintraud and Laves have studied (*Zeits. f. physiol. Chem.*, xix) the inspired and expired air of diabetics with the aid of an apparatus after the principle of Regnault, devised by F. Hoppe-Seyler. The patients had been kept for a month on restricted diet (proteid and fat) in metabolic and nitrogenous equilibrium, and the urine was free, or nearly free, from sugar. The absolute amount of oxygen taken up was as much as in health. A lower value for the respiratory quotient was found, which is explained by assuming the oxidation of carbon-containing substances not in the food, presumably glycogen, and also the formation of acetone, acetoacetic and oxybutyric acids from higher fatty acids. The addition of carbohydrate food produced a slight increase in the carbon dioxide and raised the respiratory quotient a little, showing the diminished ability of the system in these cases to oxidize sugar.

Carbohydrate Metabolism in a Diabetic Dog.—Clinical experience has demonstrated the advantage of lævo-rotary over dextro-rotary carbohydrates in the diet of diabetic patients. Weintraud and Laves, working on a dog with diabetes following removal of the pancreas (*Zeit. f. physiol. Chem.*, xix), have sought to determine the fate of the carbohydrates; whether in each case they are stored away as glycogen or give rise to increased carbohydrate combustion, in this latter instance increasing the amount of carbon dioxide expired and raising the respiratory quotient. The results show in the case of the lævo-rotary a higher respiratory quotient, indicating an increased combustion, while with dextro-rotary sugars the respiratory quotient remained constant.

A Carbohydrate in Normal Urine.—Baisch finds (*Zeit. f. physiol. Chem.*, xix) in two litres, representing twenty-four hours' urine, an average of 0·12 gramme dextrose and 0·19 gramme of reducing non-fermenting carbohydrate.

The Estimation of Cystin in Urine.—Borissow (*Zeit. f. physiol. Chem.*, xix) gives the following method: Five hundred cubic centimetres of urine are treated on the water bath with twenty cubic centimetres of dilute hydrochloric acid and zinc. To the filtrate are added ten grammes mercuric chloride and ten grammes of sodium acetate in concentrated solutions. After the removal of the mercury from the new filtrate with hydrogen sulphide and the removal of this with carbon dioxide, the solution is concentrated and again treated with hydrochloric acid and zinc and mercuric chloride and sodium acetate as before, which precipitate all the cystin. The united mercury precipitates are suspended in water and decomposed with hydrogen sulphide, the excess of this gas removed from the filtrate by carbon dioxide, and the solution then evaporated to dryness on the water bath. The residue is twice extracted with absolute alcohol and then dissolved in a little ammonia, which is filtered and mixed with ten volumes of alcohol. The solution is separated from the precipitate formed, and the latter is dissolved in ammonia and again precipitated with alcohol as before. The united filtrates are evaporated and the residue is dissolved in ammonia and precipitated with alcohol. The precipitates obtained are cystin, together with considerable foreign substances. The actual amount of cystin is calculated from the amount of sulphur, which is estimated by the method of Carius. In the case studied the amount was 0·05 per cent., or about a gramme in twenty-four hours. Diamines were found present in large amounts in the fæces.

The Fat of Women's Milk.—Laves finds (*Zeit. f. physiol. Chem.*, xix) that the fat of women's milk is very poor in volatile acids and those soluble in water, but contains a large amount of acids belonging to the unsaturated series. The volatile portion is composed largely of caproic, caprylic, and caprinic acids; the non-volatile, insoluble portion, of palmitic, stearic, and oleic acids, besides which are one or more acids of a lower molecular weight, including, perhaps, myristinic acid. The melting point of the fatty acids is 37° to 39° C.; the melting point of the fat itself, 30° to 31° C. The chemical composition is thus quite different from that of cow's milk.

Proteids.—Many attempts have been made to express an empirical molecular formula for proteids, but little light has thus been obtained regarding their true structure; and the same is true of the several theories of their structure that have been successively proposed. While they have the advantage of being suggestive, they carry little proof. The only way open to obtain any real knowledge on this subject seems to be by the study of their decomposition products, and of these there are two classes, according to the way they are formed: 1. The cleavage products, still partaking of the proteid nature and but little removed from the original substance. 2. The crystalline products produced by more destructive decomposition. These latter exist in the gummy residue, and when the known products are separated, the chemist is accustomed to classify the remaining substances as unknown extractives. Recent years have seen an advance of our knowledge regarding both these classes of decomposition products.

The primary cleavage products are formed by ferment action in both peptic and pancreatic digestion, as well as by several vegetable ferments, and also by the action of hot water, superheated steam, and boiling acids. The proteid appears to yield two parts, well known as the hemi-moiety and anti-moiety of the proteid molecule. These differ in that, while the former is capable of yielding both leucine and tyrosin and other cystalline products, even by tryptic (pancreatic) digestion, the anti group of cleavage products yields no tyrosin, even by decomposing with dilute acids; and it does not give Millon's reaction, which is dependent upon the tyrosin residue of the proteid molecule. This, then, is the beginning of knowledge regarding the cleavage of albuminous substances, the formation of these two groups of products. Looking at the products from a different point of view, we have Kühne and Chittenden's classification of albumoses, or, more correctly, proteoses and peptones, these latter further removed from the original proteid and always formed through the stage of proteose. Looking at the products from this standpoint, the process is one of simple hydration with cleavage, since the successive products contain a diminishing amount of carbon.

The crystalline products of proteid decomposition are formed in part by pancreatic digestion, also by the action of acids and by the action of alkalies. But acids and bases do not act in the same way upon proteid matter. Both, in common, yield ammonia and amido-acids; but baryta, for example, yields oxalic and acetic acids, which decomposition by acids does not. In the decomposition of casein with hydrochloric acid and zinc chloride, Hlasiwetz and Habermann, investigators of twenty years ago, were able to separate leucine, tyrosin, aspartic acid, glutamic acid, and ammonia, yet there remained a viscid mother liquor from which they were unable to separate any crystalline products. Horbaczewski, in his study of this class of crystalline products, was likewise unable to separate anything further. Drechsel, however, by the aid of more modern methods has recently been more successful. He, first using phosphorwolframic acid, and later by a method involving the formation of a silver-nitrate compound, was able to isolate two bases which he has called lysin or lysatin and lysatinin. These bear much the same relation to one another as creatine and creatinine do. Lysine is, in fact, empirically homologous with creatine and also with ornithine, a base separating from the organism of birds as a conjugate compound, in place of hippuric acid in man, when benzoic acid is administered.

From the mother liquor a base bearing the formula $C_9H_{10}N_2O_3$ has been separated, which with alcohol and hydrochloric acid at 140° breaks up into benzoic ethylester and the hydrochloride of diamido-acetic acid. Phosphorwolframic acid has likewise separated from the mother liquor two bodies, $C_8H_{14}N_2O_4$ and $C_{10}H_{18}N_2O_5$.

Schützenberger, starting from our knowledge of these decomposition products, has attempted to form peptone and proteid matter synthetically, and has succeeded, by heating mixtures of amido compounds with urea and treating at a high temperature with phosphoric anhydride, in forming what he calls pseudo-peptone, which certainly does resemble peptone in its general reactions. It gives both the biuret and xanthoprotein reactions and is precipitable by tannin and picric acid and many salts and other compounds which react in a similar way with natural peptone. He has devised formulas and reactions to represent the synthetical formation of peptones, but they are far too theoretical and complicated to merit consideration here. This will suffice, however, to show that a steady and substantial progress is being made in the solution of these problems which constitute the necessary steps to the discovery of the chemical reactions which constitute life itself.

New Inventions, etc.

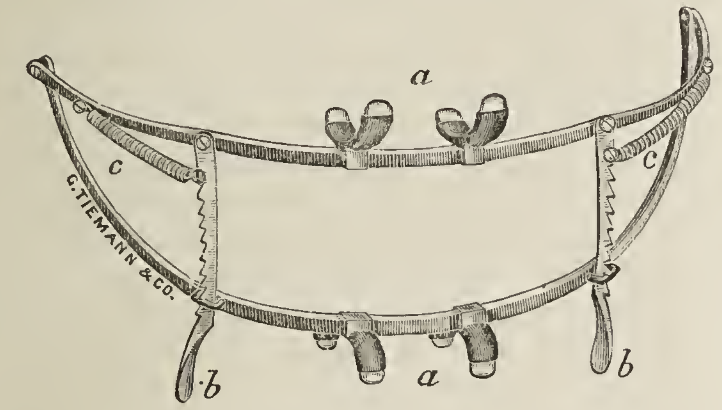
A NEW ORAL SPECULUM.

By C. W. Stranahan, M. D.,
Erie, Pa.

In operating in the oral cavity I have often felt the need of an instrument to keep the mouth open and permit of as much room as possible, without being compelled to change the position of the instrument used. This I found was impossible with any speculum with which I was familiar. All the speculums and gags for this purpose, whether of wood or of metal, are too much in the way, or have to be moved from one side to the other in order to give the operator the necessary amount of room to operate The changing of the position of the speculum or gag always occupies precious time, which, as we all know, is something we must overcome if possible. Operating in the mouth and giving ether at the same time is more or less difficult, and the fewer obstacles we have in the way the better. In casting about in my mind for an instrument that would hold the mouth open in a certain position and constructed in such a manner that it would practically be out of the way, allowing the operator to work without interference, I resorted to several methods, and had a few instruments constructed and tried them, but without any advantage.

At last I hit upon the idea of an instrument such as is shown in the accompanying cut, which I find answers every purpose.

The speculum is composed entirely of metal and rubber, the rubber being used to cover the plates on which the teeth rest, in order that they may not become broken or injured in any way. This speculum is about six inches long from tip to tip, and can be opened as wide as the mouth will permit.



a a are the plates on which the jaws rest. The rubber can be removed and renewed within a few minutes as often as desired.

The plates *a a* can be moved to the rods *b b* or be brought together. The speculum can therefore be applied to the mouth of any patient by spreading the hooks for adults or sliding them together for children. In case of a gap between the teeth the hook is passed upon the next sound tooth. The hooks or plates being turned up in front, elevate the lips and prevent their closing, thus admitting of a perfect view. The jaws can be opened or closed without removing the speculum by simply pressing the rods *b b*, which are held in place by the springs *c c*. The speculum can be easily cleaned or boiled without doing any harm or injury to any part, which is a great advantage over any wooden gag. Another great advantage is the small amount of space it takes up, and, being light, it can be carried in a very small space.

The instrument is manufactured by Messrs. George Tiemann & Co., of New York city, and is a model of neatness.

140 West Eighth Street.

Miscellany.

Is Strychnine an Antidote to Cobra Poison?—In the October number of the *Transactions of the South Indian Branch of the British Medical Association* there is a report of a paper on this subject which was read by Surgeon-Lieutenant R. H. Elliot, of Madras, who said that it had been his object to ascertain the value of strychnine as an antidote to snake poison, and the two courses which seemed to him to be open had been to experiment on the lower animals and on man. It must be remembered, he says, that the action is based on theoretical grounds so far as Indian snakes are concerned, that strychnine is a dangerous drug, and that it is often very difficult to determine whether any case is one of thanatophidial bite or not. Bearing such important considerations in mind, we can not, he thinks, refuse to accept the term experiment for the strychnine treatment of man.

Before describing his own methods the author cites two objections that have been put forward in regard to previous experiments on animals: 1. That they were carried out on dogs, and that one can not argue directly from one class of vertebrates to another, even though both are mammals. 2. That between the nervous system of man and that of the lower animals there is "only a functional analogy which has been mistaken for a complete identity." The first objection, says Dr. Elliot, occurred to him at the outset of his work, and he therefore did not limit himself to certain sets of vertebrate animals, but chose animals which would as much as possible represent the vertebrate kingdom, and especially the *Mammalia*. With regard to the second objection, he says, no one will contend that there is absolute identity between the nervous systems of two animals even of the same species, whether they are man or beast, but he strongly maintains not only that there is a functional analogy, but that there is an anatomical analogy, a physiological analogy, a pathological analogy, a clinical analogy, a therapeutical analogy, and in fact every kind of analogy between the nervous systems of man and those of the lower animals. It may reasonably be asked what evidence there is of this universal analogy between man and the lower animals in their reactions to cobra poison and strychnine, and in order to answer this the effects of these poisons on the animals which have been experimented on must be compared with the well-known effects of the same agents on man; they will be found to be practically the same.

The strychnine check experiments will show that the first symptom of strychnine treatment is a general bracing up of the nervous system; a few moments later the animal becomes alarmed and its movements tend to be spasmodic; it seems unable to stand comfortably, and a convulsion, either opisthotonic or emprosthotonic, throws it down. Clonic and tonic convulsions alternate, and respiratory spasm is severe, the embarrassment of the respiratory center being shown in the general lividity and in the very rapid breathing during the intervals between the spasms. The least sound or touch brings on a fit in the animal, which if left alone might lie still. The convulsions are attended with severe pain, and the patient usually dies in respiratory spasm or, more rarely, exhausted by frequent spasms. If death is averted, the animal recovers rapidly, the convulsive stage passing into a sleepy condition in which the nervous system seems to be profoundly exhausted, but in which condition the author has never seen an animal die.

With regard to cobra poison, in frogs and lizards the only noticeable points were that the animals showed signs of malaise, paralysis rapidly supervened, spasms usually occurred, and life was extinguished. The earliest symptoms noticed in the *Mammalia* were drowsiness and loss of control over the limbs, especially the hind limbs. After a short interval the sitting posture is given up, and soon the patient lies helpless, paralyzed, and dying. The respiration toward the end is slow but not labored. The end is often ushered in by a little shudder, a clonic spasm of the limbs, in no wise comparable to the strychnine convulsion. The cobra-poisoned animal retains its consciousness almost to the last. Salivation, says Dr. Elliot, was a very common feature of the case in the mammals experimented on. In dogs, pigs, goats, and monkeys, as well as in birds, it was a practically unvarying symptom. An examination of the subcutaneous tissue at the seat of the injection showed an extravasation, evidently of an inflammatory nature, around the lesion. In monkeys two additional symptoms were present to which the author especially directs attention. The earliest sign of cobra poison in these animals was the drooping of the upper eyelids. This became so marked in time that the animals tilted their heads back and rolled their eyes down in order to see. This drooping was evidently paralytic. The other symptom was a condition frequently referred to in the notes on monkeys as drunkenness. The animals lost their power of co-ordination and staggered about with an extremely drunken look. In one case the monkey seemed to suffer from the optical delusion that a rope was in front of it.

Dr. Elliot alludes to Wall's description of a human being suffering from the results of a snake bite. Most striking, he says, are Wall's allusions to the early drooping of the eyelids and to the feeling of drunkenness, an account of which will be found in Wall's *Indian Snake Poison.* These and other points, he thinks, will establish that there is a very close analogy between the various *Mammalia*, including man, in their behavior to the two poisons. Dr. Elliot describes a number of antidotal experiments made with strychnine in cases of cobra poisoning, and says that out of the whole number, thirty-three, he had not one single case of recovery to record; that in no case did the strychnine save life. Much, he says, must be allowed for the individual idiosyncrasies of animals, nevertheless he thinks that a lesson may be learned—namely, that, given an animal with a poisonous dose of cobra poison, the subcutaneous injection of strychnine often hastens death very noticeably, while it can not be said to retard it materially. It would seem, he says, that death may be hastened by the antidote in two ways: 1. By its increasing the force and speed of the circulation, thus aiding the diffusion of the virus. 2. By the exhausting reaction which strychnine undoubtedly produces on the nervous centers. The author adds that he believes that the supposed antidotal action of strychnine in cobra poisoning is a delusion and a myth. On comparing the strychnine check experiments with the antidotal experiments, he says, the following facts will be observed: 1. That symptoms of strychnine poisoning manifest themselves as early after the injection of strychnine in the one case as in the other. 2. That in the early stages the convulsions of strychnine are as violent in the one case as in the other. 3. That in the later stages animals die from cobra poison with typical symptoms, and yet the least touch evokes an undoubted strychnine tremor in the animal up to within a minute of death. An intermediate stage occurs in which the victim starts on the least touch or sound, but does not respond with a convulsion. 4. That under the influence of a poisonous dose of strychnine the animal dies as surely when fully under the influence of cobra poison as it does when no such poison has been given. 5. That in some cases strychnine administered in physiological doses seemed actually to determine at once the impending fatal issue. 6. That in an animal poisoned with cobra virus strychnine may produce a temporary stimulation, and so may give rise to a fallacious appearance of improvement.

With regard to the experiments on man, Dr. Elliot relates a number of cases in which the results would seem to show that the action of strychnine was like that of any other cardiac and respiratory stimulant, but that there was any specific antidotal action the author can not admit. In some cases hysteria and fright were strong elements, and in a few cases the histories suggested thanatophidial origin. Dr. Elliot says that he can not accept Dr. Müller's conclusions until he knows of at least one recorded case in which a well-grown poisonous snake struck a man, a woman, or a child; in which that snake was identified by a reliable authority and proved to possess fangs and a poisonous sac, or it was shown that, in another case, a fatal result had followed a bite from this same snake; or in which symptoms of undoubted snake poisoning appeared and were definitely removed by the administration of strychnine. He can not accept cases in which strychnine was given, and, after an indefinite period, "the patient got better." No such cases, he says, are forthcoming, and he thinks that, while experiments on animals condemn, experiments on man do not definitely and distinctly support, Dr. Müller's treatment.

The Employment of Iodoform Vapors in Coryza and Bronchitis.—In the *Revue internationale de médecine et de chirurgie pratiques* for January 10th there is an abstract of a paper which was read at a recent meeting of the Société de thérapeutique by M. Maurel. The writer remarks that, as the *Staphylococcus albus* is a micro-organism which is always found in the nasal mucus, and is capable of playing an important rôle in the pathogeny of coryza, M. Maurel thought that in this disease he could use a product that would act directly against the vitality of the microbe. He therefore chose iodoform, as its activity in hindering the cultivation of *Staphylococcus albus* had been demonstrated experimentally. At the onset of coryza he fixed a piece of cotton saturated with iodoform in the nasal fossa, which did not provoke either annoyance or irritation. The iodoform vapors were thus brought constantly in contact with the mucous membrane, and the coryza disappeared rapidly without causing descending bronchitis. Together with this treatment M. Maurel uses iodoform pastilles, each containing three milligrammes, and the fumes of six of these are inhaled by the patient every day. In this manner the aspiratory tracts of the patient are influenced by the iodoform vapors. The following conclusions, says the writer, may be drawn from M. Maurel's communication: 1. The iodoform vapors that escape from the cotton rapidly cure acute coryza and prevent descending bronchitis. 2. The latter affection is also quickly ameliorated by these vapors together with the use of the pastilles. 3. This treatment is equally serviceable in arthritic coryza, but it is powerless against ozæna. 4. It would probably be well to use it in tuberculosis of the respiratory tract. 5. The iodoform vapors seem to influence all affections either provoked or complicated by the *Staphylococcus aureus* or *albus*.

The Duration of the Contagiousness of Diphtheria.—The *Journal des praticiens* for January 19th contains an article in which the writer remarks that this question is the subject of much controversy. A young physician, M. Tézenas, recently collected sixty observations of patients who were attacked with characteristic diphtheria, and he divided these cases into three series, and made a bacteriological examination of the products taken from the bucco pharyngeal mucous membrane and from the nasal discharge. The following results were obtained: In the first series, in forty-four cases, the mucous membrane did not present any false membranes and there was no nasal discharge. On bacteriological examination, the cultures showed no bacilli, except in three or four cases where Loeffler's bacillus disappeared after four days. In the second series, in five cases the mucous membrane was divested of its false membranes and the nasal discharge dried up. Nevertheless, Loeffler's bacillus persisted from twelve to twenty-eight days. In the third series, in eleven cases the nasal discharge persisted, and the cultures with this discharge were positive, although those of the products drawn from the bucco-pharyngeal mucous membrane were negative. The presence of bacilli in the nasal discharge was observed for from five to thirty-five days. These facts, says the writer, lead to the following practical conclusions: 1. In a number of cases the metadiphtheritic contagiousness ceases with the disappearance of Loeffler's bacillus. Nevertheless, the irritated condition of the bucco-pharyngeal mucous membrane, under the influence of intercurrent measles, favors the increase of the bacilli and their presence in the mouth; hence the necessity of a bacteriological examination of the products taken from the mucous membrane of this cavity. 2. Not infrequently (in eleven cases out of sixty) Loeffler's bacillus disappears from the throat, but is still found in the nasal discharge. The trouble is thought to be common coryza, which is a mistake, as this discharge is not accompanied with any symptoms of classic coryza. There is no conjunctival injection, or headache, or watering of the eyes. Ordinarily it is unilateral. The discharge is a transparent mucus and by no means the sanious discharge which succeeds false membranes of the throat. 3. According to M. Tézenas, Loeffler's bacillus exists in the nasal cavities as long as the nasal discharge continues, and disappears when it does. He adds that when this discharge is absent there are no bacilli in the nose.

In practice, then, says the writer, this fact must be taken into consideration, that a nasal discharge the origin of which does not coincide with the disappearance of the false membranes is not diphtheritic. It does not contain Loeffler's bacillus. The bacteriological examination proves that unquestionably.

The Inconveniences of a Milk Diet in Cases of Albuminuria.—The *Revue internationale de médecine et de chirurgie pratiques* for January 10th contains an abstract of an article by M. de Grandmaison which appeared in the *Médecine moderne*, No. 76, 1894. The author, says the writer, has established a distinction in patients suffering from albuminuria, from a therapeutical point of view. If patients attacked with parenchymatous nephritis, or threatened with uræmia, whatever may be the renal lesion which causes it, find a milk diet absolutely satisfactory, the author thinks that it has not the same effect in gouty albuminuria. He considers that an exclusive milk diet is useless among patients of this class and even harmful, as it does not furnish sufficient nourishment for persons who have to work, and they form the majority of this class of patients. As uric acid is the irritating product of the glomerules and causes the appearance of albuminuria, the author does not see what influence a milk diet can have on the elimination of the uric acid. He advises that patients of this class should be subjected to the ordinary diet, and that, in certain cases, they should be given tonics—such as iron—or modifiers of vascular tension, such as strychnine, or substances which act directly on urinary infiltration, such as strontium lactate. The gouty diathesis must also be kept in view, and, in instituting an appropriate treatment, "uricæmia" and irritation of the glomerules must be avoided, as they give rise to albuminuria.

Pilocarpine in the Treatment of Nephritis.—In the January number of the *Annales des maladies des organes génito-urinaires* there is an abstract of a paper which was read at a recent meeting of the Lyons congrès de médecine interne by M. H. Mollière. The author had tried this remedy in the treatment of acute and chronic nephritis. The applications consisted of frictions, practiced especially on the trunk, with an ointment composed of three ounces of white vaseline and from four fifths of a grain to a grain and three fifths of pilocarpine nitrate. A very large dose of the remedy, he says, causes disagreeable cutaneous eruptions, which may make it necessary to interrupt the treatment.

The region is covered with a thick layer of cotton wool and a piece of waxed linen, which is not to be taken off until the wool is completely wet with perspiration, when it is replaced at the end of a few hours. In patients who are subjected to a milk diet, as well as in those who take other forms of nourishment, the results are very nearly the same: a rapid recovery in acute nephritis and a marked amelioration in the chronic form.

M. Mollière calls attention to the sudorific action of pilocarpine, which is manifested by a continued abundant sweat, and a concomitant diuresis is accomplished through the medium of the nervous system. In this way medicaments which act directly on the kidneys after being absorbed by the stomach, which they soon irritate and disorder, may be avoided.

External applications of pilocarpine do not directly influence either the kidneys or the stomach, and the revulsive and derivative action on the skin facilitates the elimination of the toxines and at the same time relieves the congestion of the kidneys.

Furthermore, the diuretic action of pilocarpine is added to that of the milk, and, by the sweating it provokes, moderates the exaggerated action, if there is any, which may end by irritating the kidney itself. In the beginning of convalescence, says the author, when the œdema has disappeared and the albuminuria diminished, it is well to have this indirect diuretic action.

The physiological action of pilocarpine, says M. Mollière, applied by friction, seems to be purely local; the medicament is not absorbed, and it is impossible to find any trace of it in the urine. With regard to diuresis, it may be explained by the effects which are obtained in external applications of certain alkaloids. In the same manner that sparteine, when applied to the skin, produces a lowering of the central temperature, so pilocarpine may give rise to a medullary reflex causing the vaso-dilatation of the kidney.

Meningism.—The *Revue internationale de médecine et de chirurgie pratiques* for January 10th publishes an abstract of a paper which was read at a recent meeting of the *Congrès de médecine internationale*, of Lyons, a report of which appeared in the *Bulletin médical* for November, 1894. Under this name the author designated all the symptoms excited by pain in the meningeo-cortical zones, and independent of any anatomo-pathological alteration. The elements of meningism are symptoms of general and local excitation, then depression of the cerebral cortex, with headache, vomiting, and constipation, and finally thermic disorders. A neuropathic heredity is the most important cause. Meningism is observed chiefly in children and young women. Its exciting causes are of a reflex, infectious, or toxic nature. The purest type is presented in hysteria, and it may be considered a form of toxic hysteria.

Umbilical Inflammation.—At a recent meeting of the Société de chirurgie, a report of which appears in the *Mercredi médical* for January 9th, M. Tillaux related the history of a case which had come under his observation. The patient was a diabetic, and in the umbilicus was a calculus very deeply seated. There had been lymphangeitis with the formation of a subcutaneous abscess, which had been opened. M. Tillaux called attention to the frequency of subcutaneous umbilical inflammation, and said that, although he did not doubt the existence of the subperitoneal inflammation described by M. Heurteaux, he thought it was extremely rare, and that, owing to the very deep seat of these subcutaneous abscesses, it had erroneously been thought, upon opening them, that the peritonæum was exposed.

M. G. Marchant had observed two cases of circumumbilical inflammation. In one case the abscess had manifestly been situated behind the sheath of the right rectus muscle. In the other case the abscess had also been subperitoneal, and the pus had contained gonococci.

M. Segond had observed two cases of subperitoneal abscess in very stout persons.

M. Richelot said that he had seen a case where the subperitoneal abscess had been of tuberculous origin, and he thought that many of the abscesses described by M. Heurteaux had been due to tuberculosis.

M. Tuffier also cited a case where the umbilical abscess had been caused by inflammation of the vermiform appendix.

A Case of Poisoning with Nutmegs.—In the *Lancet* for January 19th Mr. T. G. Simpson, L. R. C. P. Edin., relates the following case: On December 9th his assistant was called to see a woman, twenty-six years old. He found her lying on the bed in a drowsy condition and very delirious. There were fairly lucid intervals, when she complained of a sensation of great tightness across the chest and of vertigo and faintness when attempting to rise. She vomited several times. The pulse was 75 a minute and rather feeble; the heart's action also was feeble; the pupils were normal. It was ascertained upon making inquiries that the patient, who was a strong, healthy woman, had taken two nutmegs crushed in a small quantity of gin, as she had gone over the menstrual period for a week. The assistant directed her to remain in bed and to take a little strong coffee with a dessertspoonful of brandy in it every half hour. He also prescribed a mixture of potassium bromide, ammonium carbonate, sodium bicarbonate, spirit of cajuput, and chloroform water [quantities not stated]. The author himself saw the patient a few hours later and found her condition improved, but still showing the same symptoms. He continued the treatment, and the next day she was very much better, although there was a little vertigo, and she was very weak. The coffee and brandy were given up, but the medicine was continued and on the following day she was able to get up. Since then recovery had progressed favorably. The author adds that the nutmegs had no effect whatever in producing miscarriage.

Injections of Sheep Serum in the Treatment of Syphilis.—In the *Presse médicale* for January 12th there is a review of an article by Dr. Istamanoff, which appeared in *Vratch* for November 24, 1894. The author, says the writer, tried this method in sixteen cases of syphilis, and in thirteen the injections caused the disappearance of all the secondary symptoms; in the fourteenth, they had no result; in the fifteenth, the symptoms returned as soon as the injections were discontinued; and in the sixteenth, the roseola disappeared, but the ulcerated papules were not modified, so that the author had to resort to local treatment with calomel.

The serum was taken every day from a sheep's carotid artery, and injections of from two to six cubic centimetres were administered every day, or at intervals of two or three days, ordinarily in the buttock. The largest number of injections given to each patient was fifteen. The author found that they were always painful, sometimes extremely so, and that each one gave rise to a slight increase of temperature, which did not exceed, however, 98·9° F.

With regard to the curative value of this treatment, Dr. Istamanoff admits that the injections cause the disappearance of the visible manifestations of syphilis in the secondary period, but the small number of cases and the short time during which the patients were under observation did not enable the author to say whether or not these injections really cured syphilis and prevented its recurrence.

The Treatment of Diphtheritic Angina with a Concentrated Solution of Corrosive Sublimate in Glycerin.—The *Gazette hebdomadaire de médecine et de chirurgie* for January 5th contains a review of an article by M. Goubeau and M. Hulot, which appeared in the *Archives générales de médecine* for September and October, 1894. In forty-four cases, says the writer, the authors employed this treatment, which consisted in painting the false membranes with glycerin containing five per cent. of corrosive sublimate twice during the twenty-four hours. The paintings should be confined as much as possible to the false membranes, which should never be detached, and if too much of the sublimate has been used it must be wiped off immediately with a dry brush. These applications were not painful in the majority of cases, and the false membranes seemed to dry in their place and fall off without being reproduced. The secondary infections and the adenopathy disappeared very rapidly, the general condition improved quickly, and no symptoms of mercurial poisoning supervened even in very young infants. The mortality was 4·7 per cent.

The Pithecanthropus Erectus.—In the *Progrès médical* for January 12th M. Baudouin writes that a biological discovery of really very great interest, if the account is true, has recently been made at Java by M. Dubois, of Holland, and communicated to the *Société de géographie* and to the *Société d'anthropologie.* This discovery, he says, is nothing less than the finding of the long-looked-for "missing link" between man and the monkey, of the *Pithecanthropus erectus* predicted for so many years by Darwin and his followers. This, says the writer, is undoubtedly the most important scientific fact recorded for the year 1894. All honor then, he says, to Darwin and to Broca, who many years ago foretold and prepared the world for this magnificent triumph of modern science.

A Treatment for Acne of the Face.—In an abstract from the *Bulletin général de thérapeutique* for December 30, 1894, which appears in *Lyon médical* for January 13th, the writer gives the following formula which, he says, has often been employed at the Saint-Louis with success: Fresh lard, 750 grains; sublimed sulphur, 105 grains; beta-naphthol and styrax ointment, each, 30 grains. Applications of this mixture should be made with strong friction every night for a week, then interrupted for six days, when they may be repeated if necessary, although it is often useless to do so. If there is an appearance of small acute clusters, which generally show themselves toward the second day, the acne is ordinarily cured or very much ameliorated at the end of a week.

A New Treatment of Whooping-cough.—*Lyon médical* for January 13th publishes an abstract of an article from the *Médecine moderne* for December 26, 1894, in which M. de Chateaubourg describes a new treatment of whooping-cough, which consists in injecting, subcutaneously, two cubic centimetres and a half of a ten-per-cent. solution of guaiacol and eucalyptol in sterilized oil. After the third injection the fits of coughing diminish noticeably, the appetite returns, and, as the vomiting rapidly ceases and the general condition begins to feel the good effects of the treatment, the whooping-cough disappears at the same time. The author reported five cases.

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 7th inst., the special order was a paper entitled Some Considerations about the Materia Medica and Therapeutics, by Dr. E. G. Janeway.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 12th inst., a paper is to be read on The Present Treatment of Urethritis in New York, by Dr. Ramon Guitéras. Patients and pathological specimens will be presented.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 14th inst., the following papers will be read: The Effect of Primary Schools on the Health of the Children, by Dr. H. D. Chapin; How can the Sanitary Conditions of the Public Schools be Improved? by Mr. Charles C. Wehrum; and Infectious Diseases in Schools, by Dr. Moreau Morris.

THE NEW YORK MEDICAL JOURNAL, February 16, 1895.

Original Communications.

SPRAINED ANKLE.

A TREATMENT THAT INVOLVES NO LOSS OF TIME, REQUIRES NO CRUTCHES, AND IS NOT ATTENDED WITH ANY ULTIMATE IMPAIRMENT OF FUNCTION.

By V. P. GIBNEY, M.D.,

SURGEON IN CHIEF TO THE HOSPITAL FOR THE RUPTURED AND CRIPPLED.

In the January issue of the *New York Polyclinic* for 1893 the writer published a paper entitled The Modern Treatment of Sprained Ankle. The interest awakened in the profession by the publication of a method of treatment so simple and so efficient prompts him to make a still further communication. A number of letters asking for more explicit details, mildly criticising the style of the writer, have called for this second edition, which is now presented in the hope that the method advocated may prove as serviceable to the members of the profession as it has to the many who have made themselves familiar with its application.

As stated in 1893, no claim is made to any priority. The aim has been simply to present a method which was first employed, so far as one can learn, by Mr. Edward Cotterell, of London.

Dr. William R. Davis, captain, medical corps of the United States army, was the gentleman who first called my attention to this treatment in 1888, and I should have given him credit for this in Case I of the paper published in the *New York Polyclinic*, and my only apology for not doing so at the time is that, when I made the report, I had forgotten the initials of the surgeon and also the post at which he was stationed. He assured me at that time that it was not an uncommon thing at the post to put up the sprained ankles of soldiers in this way, and that prompt relief always followed. In a recent conversation with this gentleman he confirms the report then made, and it gives me great pleasure, therefore, to acknowledge an indebtedness so tardily made.

As a preliminary, I can not do better than quote from my former article, as follows:

> "I had learned to look upon a sprain as a kind of mystery involving a laceration of fibrous structures about the joint, 'a rupture of the ligament or ligaments,' sometimes a tenosynovitis, sometimes a contusion of the cartilage, but was never able to say which was which, and was inclined to look with a certain degree of admiration or pity on the man who was able to say that this ligament or that ligament was torn or detached from the bone, and I treated my cases as most men do to-day, by fomentations for a little while, then plaster-of-Paris bandage or silicate of sodium, rest on axillary crutches, subsequent rubbing and massage, etc. I confess I was never enamored of this treatment, and I had a grave apprehension always when I took charge of a case, lest I should get a stiffish joint following treatment, an irritable joint—one very much like the joints left after tuberculous disease in children where suppuration has not been a part of the disease. The external features of a sprain, the signs, were always very well pronounced. One could see the puffiness in the neighborhood of the malleolus or over the dorsum of the foot, the localized swelling with extra heat, and sometimes ecchymosis. I was brought to a knowledge of the treatment I am to describe later by the following case."

The illustrations now presented will give one, I think, a fair idea of the details of the dressing. For instance, in Fig. 1 the first strips are applied for a sprain about the external malleolus. It will be seen that a strip of rubber plaster, about twelve inches in length, is applied, beginning at the outer border of the foot, near the little toe, and ending on the inner side of the foot, about its middle, just under the plantar arch. The second strip is applied vertically, and passes from about the junction of the middle with the lower third of the leg, down alongside the tendo Achillis, over the heel, and terminating at a point just above the internal malleolus, but posterior to this.

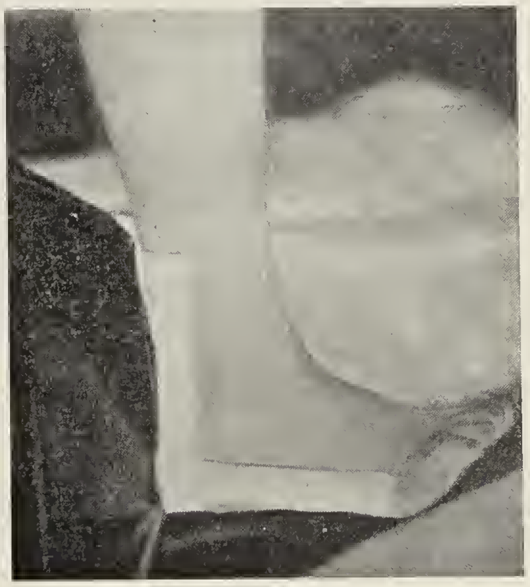


Fig. 1.

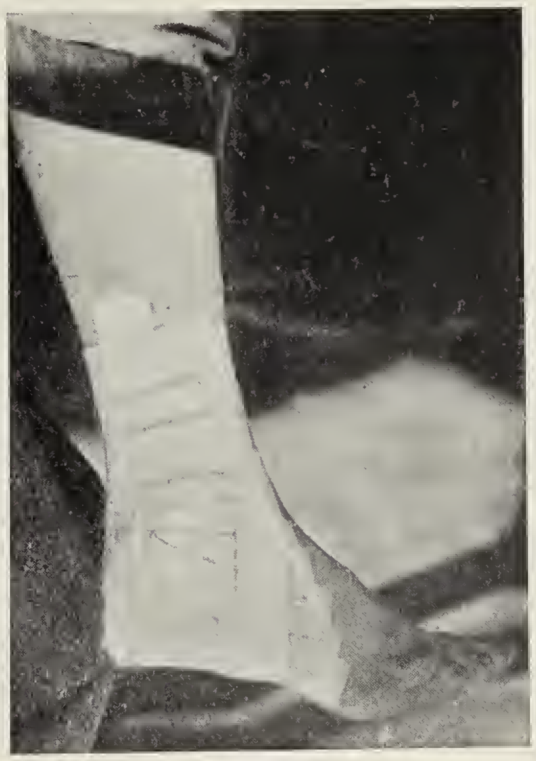


Fig. 2.

These strips, by the way, are best shown in Fig. 3, as they hang from a chair or table, and were photographed merely to show about the width and length of the strips as cut. It is not necessary, however, to cut the strips from a sheet of plaster, but they can be easily cut from a spool on which the plaster is rolled any desired length.

The remaining strips are applied in the same way, one overlapping the other about one half, until the whole external malleolus and side of the foot up to the middle third of the leg is covered, as shown in Fig. 2. It is well to re-enforce just under the malleolus by strips passing criss-cross, so as to give additional support to the part sprained. It is also important to have the strips well overlap each other, especially over the tendo Achillis and about the heel, as any slipping at these points may cause an unnecessary irritation when the boot is applied. The front of the foot with the plaster strips applied is shown also in Fig. 3 on the same plate showing the strips. It will be seen that care has been taken not to completely encircle the ankle, but to leave a space, so that all constriction may be avoided. Fig. 3, therefore, shows the front of the foot with the strips applied to the ankle, shows also the strips hanging upon a table or a board, and ought to be sufficiently clear to enable any one to complete the dressing.

Where the sprain involves the tarsal joint itself, or the midtarsal joint, and where the whole foot is involved in the swelling, the first strips are shown in Fig. 4. The first one starts on the inner side of the heel, passes back of the heel, below the external malleolus, over the dorsum of the foot, and terminates just under the ball of the great toe. The second one is started just under the external malleolus, passes over the back of the heel, over the front of the foot, and terminates just under the outer side of the foot, near the small toe. Fig. 5 shows the complete dressing for a sprain of the kind just described. I sometimes apply extra strips up and down over the tendo Achillis, the ends terminating in the sole of the foot. This precaution I have found necessary to avoid any slipping of the strips about the heel. Over the ankle thus strapped a cheese cloth bandage is snugly applied, beginning at the ball of the foot and extending up to the middle third of the leg. In cases where the toes are much swollen and where the whole ankle must be strapped, and where it is impossible to leave any space uncovered, every toe should be strapped separately before the ankle dressing is applied. This precaution is necessary to avoid swelling of the toes and insure additional comfort to the patient.

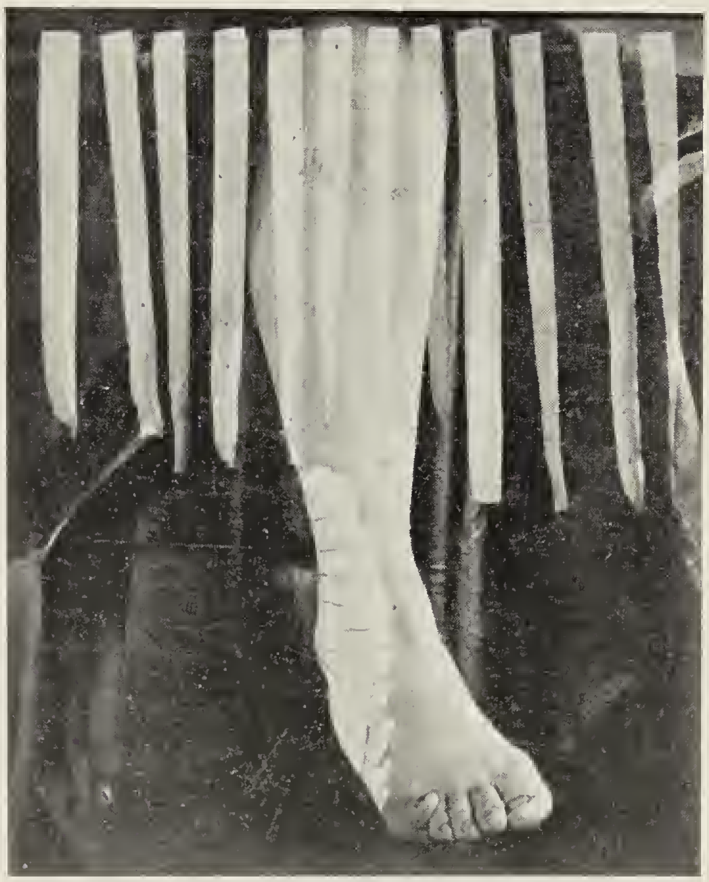


Fig. 3.

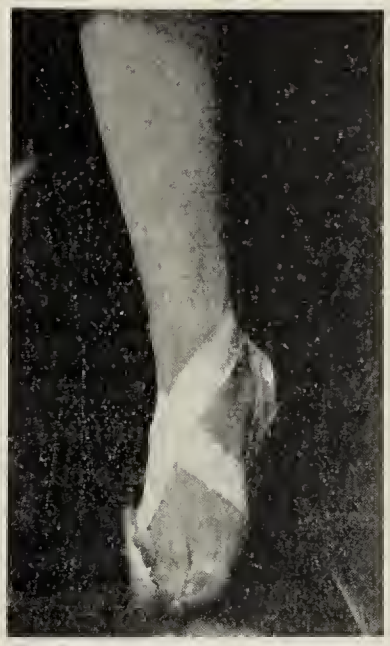


Fig. 4.

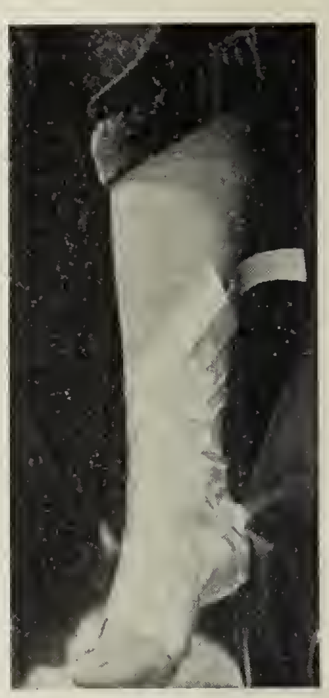


Fig. 5.

Before any strips of plaster are applied, it is good practice to elevate the foot overnight or for a few hours and employ immediate massage of the parts for a few minutes, then apply a roller bandage until one is ready to adjust the dressing. As a matter of fact, however, this precaution is seldom taken, because patients who have come under my care have generally had some preliminary treatment, and the temptation to put them on their feet at once is so great that it is difficult to resist the immediate dressing of the parts. The cases reported bear me out in this statement, and will convince, I think, the reader that the procedure just mentioned is of little importance.

The following cases recorded merely illustrate the efficiency of the treatment in the different classes of sprains that come under one's observation:

Case I.—A clergyman, thirty-nine years of age, from New Jersey, came into my office on the 13th of August, 1894, on crutches, and complaining of pain about the outer side of his ankle and across his instep. I made out as diagnosis a chronic sprain, or, more properly speaking, a subacute tenosynovitis of the peroneal tendon of the left ankle.

The history he gave was that about three months prior to this date he turned on his left ankle and wrenched the ligaments about his external malleolus. The shock was quite severe at the time. The ankle was soon put up in plaster of Paris, which remained on for two or three weeks. Bandaging was resorted to subsequently, rubbing every day, and at the time he came under my care I found a little tenderness and thickening just below the external malleolus and over the cuboid. Any attempt at adduction of the foot produced pain. There was very little extra heat. The other movements of the joint were good. He wore an elastic anklet. This was removed, and the parts were well strapped in accordance with the illustration as shown in Fig. 1. He was urged to discontinue his crutches and to use the foot moderately.

I saw him again on the 29th of August. He was then without crutches, and reported that he had been walking with scarcely any difficulty. He looked upon the relief simply as marvelous. I strapped the parts, though over a smaller area, and referred him to his family physician with the request that he restrap if it were found necessary. The reports subsequently are that he has made a perfect recovery.

Case II.—A gentleman, sixty years of age, living in this city, was referred to me on the 28th of April, 1893. The diagnosis made was sprain of the left ankle, chiefly confined to the lateral ligaments about the external malleolus.

The history he gave was as follows: Four days previously, while walking the streets in Washington, he stepped upon a small round stone, bringing the shank of his shoe against it, and his foot turned quickly, straining the ligaments on the outer side. He rested for a day or two and had a surgeon in Washington see him, who reported that it was not necessary to do much for the case, that it would soon get well, and that he had better lie up for a few days. He applied some lotions, and after a day or two went to Baltimore, where he walked about a good deal, and returned home with his ankle very much swollen and unable to get about without great difficulty.

At the time of my examination the parts were very much swollen from the base of the toes to the upper third of the calf. The contours of the malleoli were completely effaced. The point of greatest tenderness was about the external malleolus and a little posteriorly. Careful examination revealed no evidence of fracture or dislocation. There was no fluctuation anywhere, simply an œdematous foot.

I had him recline on a couch with his foot well elevated and instructed one of his male servants how to rub the foot. Two hours later I applied the dressing as shown in Figs. 4 and 5. On account of his size I took special pains to re-enforce the parts under the malleoli. I made him put his stocking and boot on while I waited. In accordance with my custom I had him walk at once eight or ten laps around the room. He rebelled strenuously at first, but after two or three turns expressed himself as feeling remarkably well. Before I left the house he was walking with scarcely any lameness, as I had instructed him to walk rhythmically and do his best to dispense with the limp. He was desirous of going on a fishing excursion the next day, and to this I gave consent.

I saw him again on the 2d of May. He reported that he had had little or no pain in his ankle since the adhesive strips were applied; that he went fishing on the 29th, but had encountered an easterly wind, sat in the boat, got cold and very chilly, and was cramped a good deal. The next day he complained of pain in his knees and was quite lame.

I found no swelling in the knees, yet I advised salicylate of sodium and hot fomentations. On removing the adhesive strips I found the swelling reduced to a minimum. In fact, there was scarcely any swelling to be seen. A little thickening remained about the external malleolus.

I restrapped, leaving the toes uncovered. I failed to mention in the foregoing that I found it necessary to strap the toes at the first dressing by reason of the great swelling. He went down town to his business.

I saw him again on the 9th of May, and was able to discharge the case as cured. I have had an opportunity of seeing him from time to time, and there has not been any relapse or any impairment of function.

Case III.—A lady, eighteen years of age, was referred to me by some friends on the 18th of September, 1894. I found a sprain of the left ankle with this history: That four weeks before she sprained the ankle by turning on it. She consulted a physician in a neighboring State, who assured her that there was quite a severe laceration of the structures about the inner side of the ankle. Splints were employed, and a few days later hot and cold douches were substituted.

She came to me then, at the end of four weeks, walking on crutches. I found tenderness on pressure over the joint in front and to the inner side. There was no swelling of any account. The functions of the joint were limited about one half. The parts were strapped, and she was urged to use the limb and dispense with crutches.

I saw her again on the 24th of September, and she reported herself as very much relieved. She had not used the crutches. A similar strapping was applied, and again on the 11th of October I made a note that she had about recovered. She was able to walk long distances without pain or discomfort, moved the foot in all directions normally; was unable to spring as well on this foot, however, as on the other. She had attempted dancing, and found it a little difficult. I assured her that she would soon be able to dance, applied some small strips about the external malleolus, directed her to wear these for five or six weeks, and permitted her to use low shoes. She made an uneventful recovery.

Case IV.—A lady, about forty years of age, rather stout, from the northern part of the State, was referred to me on the 6th of April by Dr. Willis Ford, of Utica. I found a rather diffuse sprain of the left ankle, the chief point of injury on the outer side.

The day before, while getting out of a carriage, she turned on her ankle and came with her full weight upon the twisted foot. She suffered, of course, a great deal, fainted, and was seen by Dr. Ford, who applied, after a little while, the adhesive strips. As she was coming to New York the next day, he advised her, however, to see me on her arrival in the city. It was difficult, he reported, to get the foot in good position, and he was not satisfied with the dressing as applied.

I found her with the strapping very neatly applied, but with the heel a little too much raised. I took the dressing off and found no ecchymosis, but a swelling about the external malleolus. I made a pretty careful examination in order to exclude fracture or dislocation.

The lady was extremely desirous of sailing for Europe the next morning, and after getting her foot into good position and strapping it well, I urged her to walk about the floor, which she did. I had no hesitation, therefore, in assuring her that she could sail, and that she would make a good recovery.

On the 30th of May, 1894, her brother, one of the most distinguished physicians in this country, reported to me in Washington that he had just received a letter from his sister, in which she stated that she had come to regard the age of miracles as passed, but that since her ankle had been strapped and she had gone to Europe she believed that miracles were still being wrought; that she had had no pain or discomfort whatever in crossing the Atlantic; that she landed and was able to walk with very little disability, and to show how complete her relief was, that she had just made an ascent of Vesuvius and back, feeling almost perfectly well.

Case V.—On the 22d of May, 1893, a gentleman, fifty-three years of age, from New Jersey, was brought to me by Dr. John A. Wells, of Englewood. The diagnosis was of a chronic sprain of the left ankle, with a subacute arthritis of the knee, secondary to a fracture of the tibia.

The history given was this: Three months prior to the date of his visit he fell and fractured the left tibia. There was a little overriding. A doctor was found at the time, and the foot was severely wrenched. He put the whole limb up in a fracture box. At the end of a month, when he was about taking it out, the patient, while getting out of bed, strained his left knee rather sharply, and almost immediately there was swelling in the popliteal space. This continued for three or four weeks rather acutely, and the plaster bandage was applied. The fracture was found to have united in a straight line, but a good deal of thickening remained about the ankle. At the end of two months the dressings were taken off. He was put on a pair of crutches, since which time he had been going about with very little pain and progressive improvement, but it was rather slow. In a previous consultation plaster of Paris was again advised for his ankle, but the patient objected sc much to this that Dr. Wells determined to consult an orthopædic surgeon, and hence his visit to me.

I found that the knee presented some thickening around the patella and across either side of the ligamentum patellæ, with tenderness just over the articular side of the tibia. There was some tenderness in the popliteal space. He could flex the knee to ninety degrees easily and extend to one hundred and eighty degrees. As the knee was moved in flexion and extension there was a rice-body sensation imparted to one's hand, but there was very little extra heat about the joint. When he put any weight on the foot he complained of pain running along the instep, and he found it exceedingly difficult to walk. The right ankle measured, just over the malleoli, ten inches; over heel and instep, twelve inches and a half; over instep, nine inches and three quarters. The left, at the corresponding points, nine inches and three quarters, twelve inches and three quarters, and ten inches.

I strapped the ankle for a general sprain, and also strapped the knee. Dr. Wells was very much impressed with the treatment, and agreed to continue the same until a cure resulted.

On July 11, 1893, I find this report on my notes: "Two or three weeks ago the wife called to report that the recovery was about complete; that the adhesive plasters worked like a charm." During the month of December, 1894, now less than a month ago, I casually met Dr. Wells, who reported that the cure in this case was perfect, and that he had treated a large number of cases since that date after the same plan, with uniformly good results.

Case VI.—While dining out on the 22d of January, 1893, a letter came to me from a gentleman, asking that I come to his hotel and treat his sprained ankle. In the letter he stated that his friends, who had advised him to call upon me, assured him that he could go to his business on the following day if I should see him that evening. With such an introduction I proceeded after dinner to the hotel, and found a gentleman, forty-one years of age and a lawyer by profession, suffering from a sprain of the left ankle of two weeks' duration. The ankle was incased in a starch bandage, and he had been using crutches for the past week or ten days.

He acquired the sprain by stepping off a car and turning on his ankle rather sharply. The pain was not great that night, but the following day it was much swollen on the outer side. The opinion was given that day by his physician that he was suffering from a greenstick fracture. The diagnosis was accepted by another physician, who applied a starch bandage and had had him under observation up to the time I was called to see the case.

On removing the bandage, I found that he could move the foot in flexion and extension quite easily and with very little pain, but there existed a tendinous click in the course of the anterior tibial. There was also much tenderness just above the external malleolus and along the fibula. I found no evidence of fracture. There was some swelling and thickening below the malleolus.

The parts were well shaved, rubbed a while, and then strapped with adhesive plasters. He went to his business the next day, and a letter on the 25th of January reported that he was getting on so well that he thought it unnecessary to call. I did see him on the 28th of January, when I found the cure about complete. He made a good recovery, and up to the present time report comes that he has remained quite well.

Case VII.—A lady, about eighteen years of age, was referred to me by Dr. William K. Draper, who represented Dr. Kinnicutt in his absence from the city.

The history given was this: That nine weeks previously, while in the country, she jumped from a rock about fourteen feet in height and turned as she came to the ground, spraining her left ankle. She was completely disabled by the injury, and in a day or two the foot and leg were swollen from the toes to the head of the tibia. There was considerable ecchymosis on both sides of the foot, and especially over the dorsum. She had had the stereotyped treatment for sprains—hot and cold douches, rest, crutches, etc.

I found the foot bandaged from the toes to the head of the tibia. She was able to flex and extend fairly well, but could not flex quite up to ninety degrees without pain. The pain referred to was felt about the insertion of the tendo Achillis. If she extended the foot fully, she complained of pain in the front, just over the head of the astragalus. The normal depressions under the malleoli were filled with a little infiltration. I could detect no callus anywhere. There was certainly no dislocation. All the toes were very much swollen.

I proceeded at once to strap the individual toes firmly, then strap the whole foot and ankle up to the junction of the middle with the lower third of the calf, aiming to get the foot in as good position as possible and re-enforcing along the malleoli. I had her put on a laced boot at once, and let her walk eight or ten times around the floor. Before the walk was completed she asked to go into the parlor and assist her sisters in entertaining some company. I assured her that she might go out on the morrow for a walk.

On October 15th there was scarcely any swelling about the foot or toes. The parts were restrapped, this time the strapping of the toes omitted. The following notes were made on the 5th of January, 1895: "She reports to-day, and is discharged cured. She has been dancing whenever occasion offered, and the occasions have been rather frequent. She reports that she feels better for the exercise. The plasters are all off. There is no tenderness about the insertion of the tendo Achillis, none over the astragalus. In other words, the functions of the foot are perfect.

Case VIII.—On the 25th of December, 1893, a gentleman quite prominent in political circles, thirty-nine years of age, came to me with a tenosynovitis affecting the anterior tibial group, right side.

The history he gave was as follows: "About a week or ten days ago, while walking, he turned on his foot, and it felt a little sore the next day, not at the time. He was horseback-riding a day or two afterward, and this seemed to bring on pain. Within the last day or two he has been pretty lame, and noticed some swelling along his shin."

My examination revealed a thickening along the crest of the tibia—lower portion—a little œdema over the muscle, some extra heat, and a little crepitation as he brought the anterior tibial into play. It pained him to flex and extend. Active and passive movements gave no pain. There was no part of the joint involved.

The parts along the anterior surface of the leg, from the foot to the upper third of the leg, were strapped with adhesive plasters, criss-cross, and a snug roller over all this. He was advised to use his feet naturally, but not to stretch the muscle by too much flexion or extension.

I find on my notes, under January 20, 1894, the following: "He called about ten days after the first visit, and was practically well. There was no tenderness. He could flex and extend the foot very easily. The adhesive strips were taken off and a short stockinet bandage applied." He promised to report if all did not go well. Has not reported. On January 31, 1894, I saw him on the street, and he reported himself as perfectly well.

My brother, Dr. Homer W. Gibney, served a year on the ambulance at the Roosevelt Hospital, and frequently had occasion, both on the ambulance and in the outdoor department of the hospital, to apply this dressing to sprained ankles. At my request he has furnished me with a few cases, brief notes of which are here appended.

Case A.—A man, thirty-four years of age, a plasterer, fell from a scaffolding on the 17th of April, 1893. Was taken to the hospital on the ambulance, and a diagnosis was made of sprained ankle, right side. There was considerable swelling over the external malleolus, ecchymosis, and the parts were exquisitely painful. The ankle was well strapped. He was seen a week later, dressings removed, and relief complete.

Case B.—A man, forty-two years of age, longshoreman, fell from the dock to the lighter on April 19, 1893, and sprained his right ankle. There was great swelling over the internal malleolus. He was immediately strapped and was made to walk. Two weeks later the ankle was restrapped. He walked easily very soon after the dressing was applied. The case has been dressed recently and cure was found complete.

Case C.—A seamstress, twenty-five years of age, wrenched her ankle while getting out of a car on the 15th of January, 1894. There was very little swelling, but the parts were very painful and tender. She walked into the hospital on crutches. The ankle was well strapped. Crutches were laid aside, and she walked to the car which took her home. Was seen a week later, dressing re-enforced, remaining on for a week or two, when she removed the strapping herself, and has suffered no pain or discomfort up to the present time.

Case D.—A woman, twenty-five years of age, very corpulent, sprained her left ankle, and two weeks later there was found much swelling over the external malleolus; ankle very painful. She wore at the time an ill-fitting plaster-of-Paris bandage. This was removed and the parts were well strapped with adhesive plaster from the ball of the foot to the middle third of the leg. She walked away with very little discomfort. At the end of a week the strapping was renewed, and two weeks later all dressings were removed. There was no pain or discomfort, no impairment of function.

Case E.—A nurse, eighteen years of age, sprained her left ankle in March, 1894. The injury was caused by a fall from two or three steps, twisting the ankle. The parts were exquisitely painful, and there was much swelling two days later when she came under treatment. The usual strapping was employed, crutches were dispensed with, and patient walked home, a distance of three blocks from the hospital. She was seen a week later. The swelling was much reduced, though some ecchymosis and tenderness remained. Restrapped, and at the expiration of two weeks all dressings were removed. There was no pain, no discomfort. She was able to follow her vocation without further restriction.

Case F.—A patient sprained the left ankle in the latter part of 1893. About three weeks later—that is, in February, 1894—she came under treatment for what was regarded as a rheumatic ankle. The usual antirrheumatics failed to give relief, and she was obliged to give up her work. The parts were finally strapped, the history of the sprain having then been more fully obtained, and she was able to get about with very little discomfort. Three weeks later she was free from pain and could use her ankle quite as well as ever. There has been no recurrence and no further treatment.

Case G.—A patient, twenty-seven years of age, twisted the right ankle while playing tennis. It was strapped at once by Dr. Ewell, the house surgeon of the Roosevelt Hospital. The swelling promptly subsided. It was restrapped the following day, and the patient continued his duties with little or no discomfort.

I am assured that at least seventy-five patients have been treated in this way in the clinics about Fifty-ninth Street with uniformly good results. This is the stereotyped treatment in the out-patient department of the Hospital for the Ruptured and Crippled, at my clinic in the College of Physicians and Surgeons, and has been for years followed in the orthopædic department of the New York Polyclinic.

The question is often asked, What is the theory of the method of treatment advocated? It has seemed to me that the equable support given to the tendons and ligaments about the joint results promptly in resolution of all effusion, and that the functions of the tendons and ligaments are thus promptly restored; that use of the ankle is very desirable, and that the cure is brought about by the normal action of the foot.

DOUBLE-MOVABLE MIRES FOR JAVAL-SCHIÖTZ'S OPHTHALMOMETER.*

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By the term "double-movable mires" I mean that both mires or reflectors (the graduated and rectangular) move at the same time and to an equal extent, and not one (graduated), as in the old instruments, while the other (rectangular) remained fixed twenty degrees from the center of the arc. The advantage of having both mires move instead of one is that in so doing both mires are kept the same distance from the center of the arc, and their images the same distance from any point on the cornea that is being measured; whereas, as the old instruments are constructed, one mire (rectangular) remains fixed at twenty degrees from the center of the arc on one side, while the graduated mire on the other side is required to do all the moving. This is very well if the point on the cornea happens to be of *just* sufficient radius of curvature in the meridian being measured to allow the image of the movable graduated mire to *just* touch the image of the rectangular mire when the graduated mire reaches the twenty-degree mark on its respective side of the arc. The mires would then be at an equal distance from the center of the arc, and their images consequently at equal distances from the point on the cornea measured. If, however, the meridian of the cornea under measurement is of such radius of curvature as to allow the graduated mire to come closer than twenty degrees on its respective side of the arc before the images of the mires touch, its image must necessarily be formed on the surface of the cornea nearer the point measured. On the other hand, if the meridian under measurement is of such radius of curvature that the images of the two mires approximate before the graduated mire reaches the twenty-degree mark on its side of the arc, then its image will, of course, be formed on the surface of the cornea at a greater distance from the point measured than the image from the rectangular mire, which is fixed at twenty degrees on the opposite side of the arc. I think my point is clear. Now, since the human cornea (its apex, or point on it where the visual line intersects its surface) is never, or very rarely, of just the radius of curvature to allow the graduated mire to come exactly to twenty degrees on its respective side, the same distance as the fixed mire on the opposite side, in order to have the images touch, any improvement that keeps both mires at the same distance from the center of the arc in every case, whatsoever the curvature of the cornea may be, is a decided advantage. The double-movable mires accomplish this perfectly.

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* Presented before the New York Ophthalmological Society, February 12, 1894.

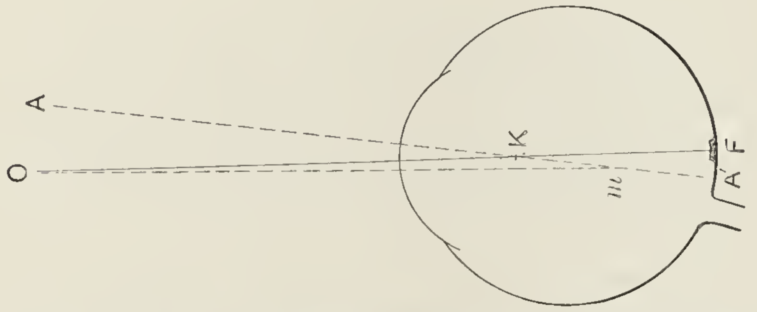

FIG. 1.—Positive angle alpha of six degrees. A A′, optic axis; F O, visual line; *m* O, line of fixation; O K A, angle alpha; O *m* A, angle gamma (in this figure the greater axis of the corneal ellipse and optic axis are the same).

Those who are only fairly well acquainted with the use of the ophthalmometer are aware of the fact that not the whole of the cornea is measured in an ordinary ophthalmometric examination, but only a very small portion of it—a space only of two and a half to three millimetres in diameter. Furthermore, the center of this space does not coincide with the center of the cornea, except when the visual line coincides with the long axis of cornea,* but with that point on the cornea intersected by the visual line, which point is usually a little to the nasal side of the center of the cornea, and as a rule on a horizontal line with it. Or, again, this point may lie to the temporal side of the corneal center. The space included between this visual line and the optic axis forward from the point where they cross is the well-known angle alpha, which is positive, nil, or negative, accordingly as the visual line lies to the nasal side of, coincides with, or is to the temporal side of the optic axis. When the angle alpha is nil or very small, as it is in the majority of cases, the center of the small space measured on the cornea practically coincides with the center of the cornea, and the measurements of the ophthalmometer in such cases, with the proper restrictions as laid down by Javal, agree usually with the glasses accepted by the patient. When, however, this angle is large, especially when there is a large amount of astigmatism, and this associated with a high degree of hyperopia or myopia, the readings of the ophthalmometer do not correspond so closely with the subjective test. For example, in the natural eye with a radius of curvature of eight millimetres, an angle alpha of six degrees is 0·9 millimetre, or practically one millimetre, and with an angle alpha of twelve degrees it would, of course, be two millimetres (Fig. 2). In such case, therefore, the point on the cornea measured by the ophthalmometer would be two millimetres distant from the center of the cornea to the nasal or temporal side, accordingly as the angle is positive or negative. Now, the two chief radii of curvature at this point may be considerably different from the radii of curvature at the apex, either one or both of them. To simplify matters, we will assume that the radius of curvature changes in but one of the chief meridians, that of the vertical, while it remains unchanged in the horizontal. Let the radius of curvature of the horizontal meridian at the apex be eight millimetres, and that of the vertical meridian 7·61 millimetres. According to Javal's formula, $D = 1{,}000\,\frac{(n-1)}{r}$, the astigmatism at the apex in such case is two dioptres. Say, however, at two millimetres distant from the apex the radius of curvature of the vertical meridian changes from 7·61 millimetres to 7·31 millimetres, while the radius of curvature of the horizontal meridian remains the same as at the apex. According to the same formula, $D = 1{,}000\,\frac{(n-1)}{r}$, the astigmatism at this point would be four dioptres. The difference in the amount of astigmatism at the two points would clearly be two whole dioptres. Of course this is a much exaggerated case, but it serves to illustrate how a large angle alpha may affect the readings of the ophthalmometer, and how the astigmatism at the apex of the cornea may vary from that at the point on the cornea intersected by the visual line. This error holds against the double-movable mires as well as the single-mov-

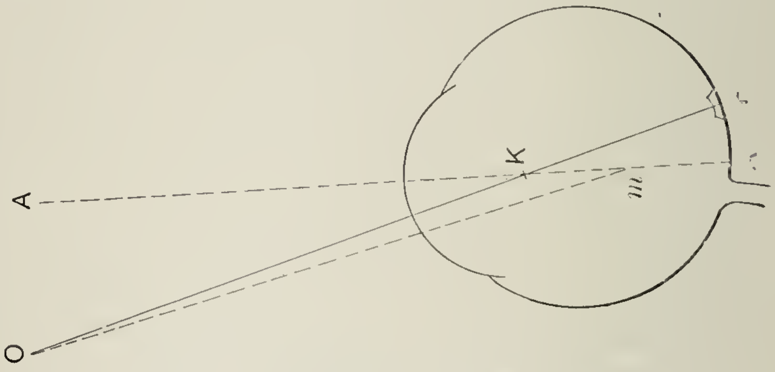

FIG. 2.—Positive angle alpha of twelve degrees.

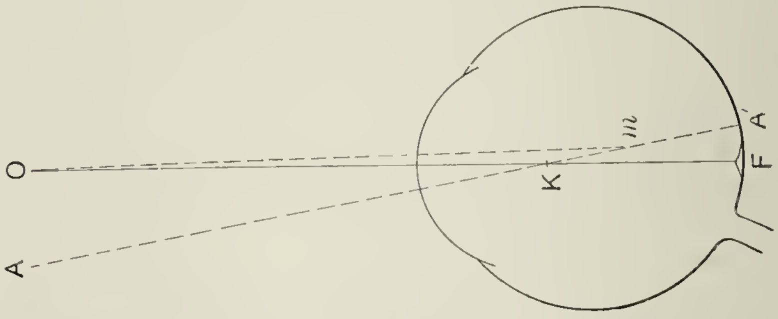

FIG. 3.—Negative angle alpha of six degrees. A′ A, optic axis; F O, visual line; *m* O, line of fixation; O K A, angle alpha; O *m* A, angle gamma.

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* Practically the same as the optic axis.

able mire, but not to the same extent, and for this reason: Besides having the radii of curvature of the two chief meridians differ, which difference is the amount of astigmatism present, the radius of curvature may be different in one and the same meridian, and not necessarily have marked irregular astigmatism, as in low degrees of conical cornea, or even where there is no conical cornea, it being a well-known fact that the farther we go toward the periphery of the cornea the flatter its surface becomes. This slight change* of curvature in the same meridian may be present in one or both of the two chief meridians of curvature. Moreover, the further away from the point being measured, the greater the difference in the radius of curvature in the same meridian is likely to be. Herein, in fact, lies the advantage of double-movable mires over the single-movable mire. With double-movable mires both images remain the same distance from the point on the cornea under measurement and relatively closer to it than in the single-movable mire. For, as has already been pointed out above, in the instrument with the single-movable mire one mire must remain fixed at twenty degrees from the center of the arc, while the other may be nearer to or further away, accordingly as the radius of curvature happens to be longer or shorter than 8·38 millimetres, the radius of curvature of the cornea (and the only one, by the way), which, by Javal's old instrument, allows the movable mire to be exactly the same distance from the center of the arc (twenty degrees) as the fixed mire is, and the images touch. If shorter than 8·38 millimetres, both images will become smaller, and to a relative extent, if the curve is constant, and the movable mire would have to be displaced further than twenty degrees on the arc in order to have the images just approximate. And if the surface of the cornea, from which this image of this relatively too-far displaced movable mire is reflected, happens to have a radius of curvature (in one and the same meridian) slightly shorter than that point on the cornea from which the image of the fixed mire is reflected, then the image from the movable mire would be actually smaller than that from the fixed mire. Again, if the radius of curvature happens to be longer than 8·38 millimetres, both images will be larger, and the movable mire would have to be moved closer than twenty degrees in order to have the images touch. Consequently, the image from the fixed mire in this instance, if the surface from which it is reflected is shorter in radius of curvature than that from which the image of the movable mire is reflected, will be actually smaller than that from the movable mire. Conversely to both of the above-cited cases, and as most often happens, when the radius of curvature of the surface of the cornea from which the image of the relatively too-far-displaced mire is reflected is longer than that from which the image of the relatively too close mire is reflected, the amount of astigmatism as measured by the single-movable mire is greater than when measured by the double movable mire. Furthermore, other things being equal, the further removed this image of the relatively too-far-displaced mire from the center under measurement, the greater the change in the surface of the cornea is likely to be, with, of course, a resultant increase in the error. With double-movable mires this error does not obtain to the same extent as with the single; hence the advantage of the former over the latter. However, if there was no advantage in this respect, it is plainly a desirable thing to have both mires move and kept an equal distance from the center of the arc, and their images equidistant from the center on the cornea under measurement.

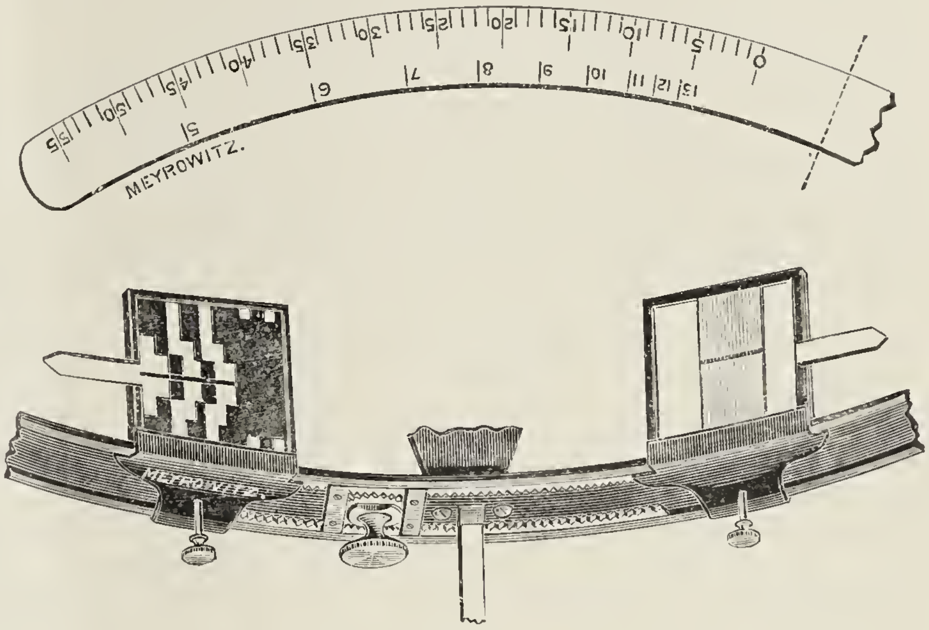

Fig. 4.

In a year's experience with the double-movable mires I have found in astigmatisms of a comparatively small amount—from one to four dioptres, with little or no hyperopia or myopia, and the angle alpha nil or very small—that the readings differed but little from those of the single-movable mire, the readings with the double-movable mires most of the time being less than with the single movable mire, about 0·25 D. to 0·50 D. less. On the other hand, in astigmatisms of large amount, especially when associated with high degrees of hyperopia or myopia, where the angle alpha is usually large,* the readings have differed more, often as much as half a dioptre and sometimes as much as one dioptre, the double mires usually giving the less amount. Furthermore, the subjective tests corresponded closer with the readings of the double mires than with those of the single-movable mire.

In irregular astigmatisms the readings with the double-movable mires proved much more satisfactory than the readings with the single-movable mire.

The *modus operandi* of the double-movable mires consists in a thumbscrew attached to the arc on the same side as the graduated or movable mire, about two inches from the telescope. On the attached end of this screw are cogs, into which other cogs, on slender shafts which extend to each mire, play (Fig. 4). Thus, by a simple turn of the screw, both mires are moved at the same time to an equal extent in or out and at pleasure. In this way both mires are kept the same distance from the center of the arc in every case.

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* When it is remembered that exactness to the fraction of one one-hundredth of a millimetre in measuring the radius of curvature of the cornea is demanded, the importance of noticing even *slight* changes of curvature in the same meridian will be apparent.

* The angle alpha in these cases was measured with candle and perimeter.

Having both mires move at one time necessitates the regraduation of the arc, both for radius of curvature and for dioptres. The regraduation for the radius of curvature is obtained by the formula: $O : I :: D + \frac{R}{2} : \frac{R}{2}$, which reduced is, $R = \frac{2\,D\,I}{O - I}$. In this formula R represents the radius of curvature to be found; O, the object, which in Javal's instrument is the imaginary line between the inner edges of the reflectors or mires; I, the size of the corneal image, which is constant and equals 2·95 millimetres; D, the distance of the object O from the cornea, also a constant quantity—five hundred and sixty millimetres—being double the focal distance of the objective, which in Javal's instrument is two hundred and eighty millimetres.* To obtain the radius of curvature to be marked in millimetres on the inner edge of the arc, corresponding with the twenty-dioptre mark on the posterior edge of the arc, we have $R = \frac{2 \times 280 \times 2{\cdot}95}{200 - 2{\cdot}95} = 8{\cdot}38$ mm., and so on, as low down as six and as high up as forty-six respectively on each side of the twenty-dioptre mark, the radius of curvature ranging from thirteen millimetres for the six-dioptre mark to five millimetres for the forty-six-dioptre mark. This doubles the width of range of the single-movable mire, and is of service in conical cornea or in very high degrees of astigmatism sometimes present after cataract extraction.

To regraduate the posterior edge of the arc for the new dioptre marks, it is only necessary to begin at the twenty-dioptre mark as it now stands, and, going each way, divide the dioptre spaces in halves, giving to each half the same value that the whole space now represents, and number them accordingly. For example, where twenty-one now is, twenty-two should be placed; where twenty-two is, twenty-four, and so on; and on the other side of the twenty-dioptre mark, where nineteen now is, eighteen should be written, and where eighteen is, sixteen, etc. (see Fig. 4).

In closing, I wish to thank Dr. G. W. Grove for his valuable suggestions and aid; also Mr. E. B. Meyrowitz, who not only made the improvement, but in a great measure is responsible for the idea of *double movable mires.*

The Employment of the New Mydriatic Scopolamine.—Pachlmann (*Ann. d'oc.*, June, 1894) regards scopolamine as superior to all other mydriatics, and the bromohydrate as the purest and best preparation. It is five times stronger than atropine, and he uses it in a solution of 1 to 1,000. It is particularly to be recommended in iritis on account of its energetic and sedative action. It breaks adhesions and cuts short the duration of the disease.

A CASE OF
CILIARY WOUND FOLLOWED BY SYMPATHETIC IRRITATION.

CLINICAL HISTORY AND ENUCLEATION

By DAVID WEBSTER, M. D.

PATHOLOGICAL REPORT AND REMARKS

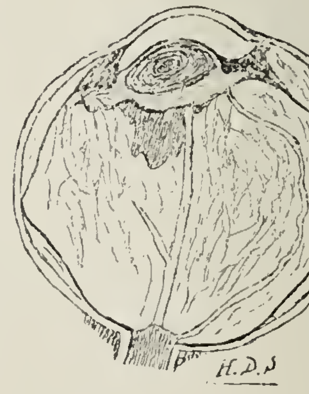
By H. DAVISON SCHWARZSCHILD, M. D.

A married woman, aged thirty-five years, was admitted to my clinic at the Manhattan Eye and Ear Hospital on September 26, 1893. She said that on September 20th she had been wounded in the right eye by the small blade of a pocket knife. The wound commenced in the cornea at a point corresponding to the infero-nasal border of the pupil and extended downward and slightly inward, involving the entire width of the ciliary region. The eyelids were slightly swollen; the ocular conjunctiva deeply injected; the pupil irregularly dilated. There was very little pain either at the time of the injury or subsequently. R. V. = shadows. L. V. = $\frac{20}{30}$. Atropine was applied, and the patient was advised to remain in the hospital. She entered the hospital as a house patient the next day and was put to bed. Iced cloths and atropine were applied. After a few days the treatment was changed to bathing the eye with hot water for fifteen minutes every two hours. On October 2d the patient had improved so much that upon her solicitation she was allowed to go home. The vision was tested and found to be, R. V., perception of light. L. V., $\frac{20}{30}$ without a glass; raised to $\frac{20}{20}$ with + 1 D. c. ax. 90°.

I saw the patient at my office on December 12th. A plastic cyclitis had set in, building up a yellowish-white mass behind the lens, and abolishing perception of light. There were blood-vessels converging from the infero-nasal quadrant of the conjunctiva to the cicatrix. The latter was slightly depressed, as though a circumscribed atrophy were beginning. The eyeball was soft, tension — 3. L. V. = $\frac{20}{30}$; $\frac{20}{20}$ with + 0·75 D. The left eye was watery and slightly sensitive to light. This was believed to be due to sympathetic irritation. On December 13th she was again admitted as an in-patient; ether was administered and the offending eye was enucleated. It was placed in Müller's fluid and given to Dr. H. Davison Schwarzschild for macroscopic and microscopic examination.

The left eye improved rapidly after the enucleation of the right, and the patient was discharged on December 17th. She wears an artificial eye with comfort.

Pathological Report and Remarks.—The eye showed marked diminution in tension, and a linear scar was visible at the sclero-corneal junction infero-nasally. A gross examination of the frozen section reveals a detached retina, coagulated exudation in the vitreous chamber, and an apparently organized membrane immediately posterior to the lens. The continuation of the cicatrix is seen to the external portion of the ciliary body, the path of the incision being directly backward and outward—*i. e.*, referring to the sclera, not to the position of the eye in the orbit. The chord subtends an arc of 30°.



Microscopically.—The cicatricial tissue is well formed and dense. The ciliary body has been the seat of a plastic inflammation and has given rise to the exudation, which is composed of fibrin and is moderately rich in cells, forming a false membrane in certain areas. The iris at its root is somewhat œdematous. The retina is enormously hyperplastic and in parts hæmorrhagic. The chorioid is atrophic and the optic nerve is almost imperceptibly involved, an extremely slight increase in the number of the connective-tissue nuclei and a moderate dilatation of the vena centralis being the only changes. By appropriate staining small colonies of the staphylococcus are visible in the ciliary body and the anterior part of the exudation.

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* This is the focal distance given by Dr. Sulzer; also 2·95 millimetres is the size of the corneal image given by this writer in his description of Javal's instrument (*Description de l'ophthalmomètre Javal et Schiötz, modèle* 1889, par le Docteur Sulzer, de Winterthur).

This case again calls forth discussion on the subject of sympathetic inflammation. The same views which I expressed nearly two years ago I reiterate, if anything, even more emphatically.

The presence of bacteria has nothing whatever to do with the transmission of the inflammation from globe to globe. As a matter of fact, an eye which is full of pus rarely, if ever, affects its fellow-organ, the tendency being toward perforation and secondary atrophy. A highly infected penetrating instrument will be more apt to produce a violent panophthalmitis than a smouldering fire; on the other hand, an aseptic instrument injuring the ciliary body will occasion a plastic cyclitis and sympathetic ophthalmia.

As a result of microscopical examination in cases of sympathetic disease, I find that the ciliary body is intimately connected with the exudation, which is usually more or less fibrinous; the latter exerts traction on the ciliary processes and irritates the nerves, producing the inexplicable reflex.

The iris and ciliary body are also very frequently incarcerated in the cicatrix, producing a constriction of the nerves. Although the optic nerve is in many cases involved in the exciting eye, the lesion in the sympathizing one is an irido-cyclitis of varying intensity, and but rarely an optic neuritis. These few latter cases have fostered the theory of direct transmission *via* the vaginal sheath; but the involvement of the iris and ciliary region can never be explained thereby. Sympathetic inflammation is most likely to occur about six weeks after the reception of the injury; it may occur sooner, and sometimes not till ten years later, particularly if there be an ossific plate in the chorioid. It may be stated in general terms that if one eye is affecting the other, the former should be removed.

If, when we see a patient for the first time, both are more or less equally diseased, it is not advisable to enucleate either at once, for sometimes the sympathizing one becomes blind and the other improves. In certain cases the first eye may suffer from serous cyclitis or a moderately subacute iritis with or without traumatic cataract, and the other have well-marked sympathetic symptoms; here also both should be symptomatically treated, and we should temporize and keep up a careful surveillance of the eyes. The exciting eye, if blind or so badly affected that we can not hope to obtain useful vision, should be enucleated.

Naturally, the best results are obtained by removing the globe when the sympathizing eye is just entering the prodromic period (sympathetic irritation), and the longer we wait, *cœteris paribus*, the worse the prognosis.

Contrary to the generally accepted view, it is possible, even after sympathetic inflammation has developed, to cure it by enucleating the exciting eye.

THE RELATION OF

THE FUNCTION OF ACCOMMODATION TO THAT OF CONVERGENCE.*

By GEORGE T. STEVENS, M.D.

The views of no man have been more universally and more unreservedly accepted than those of Donders, the revered investigator and pioneer in modern ophthalmology, to professional admiration for whom has been added personal devotion. Nevertheless, as new facts are added to our knowledge it is certain that some of the doctrines taught by this close and candid observer may be fairly investigated anew in the same spirit of candor which he originally brought to their consideration.

Donders affirms the proposition in regard to the relation between the accommodation and the convergence of the visual lines, that "so far as the range of accommodation for both eyes extends, the state of the accommodation of the eye corresponds to a definite convergence of the visual lines."

Donders, however, did not teach that this connection was absolute and casual, as had some of his predecessors in the same field of inquiry. He recognized the fact that under certain circumstances the relation between the two functions can be "at least partially overcome."

It is well known that in case of complete paralysis of accommodation occurring suddenly in young persons, the function of convergence remains undisturbed, and every one is perfectly familiar with the case of the gradual loss of accommodation from presbyopia with no loss of converging ability. The converse condition—paralysis of the converging muscles with immunity of the accommodation—presents greater difficulties in examination; yet we can not deduce a conclusion from the known facts of this condition in favor of any organic relation between the two functions. Cases long since reported by von Graefe, and many cases reported by others since then, clearly show that accommodation is retained in paralysis of the interni and in ophthalmoplegia externa.

The more recent investigations of the anatomy of the nerves controlling these functions show not only that the nucleus controlling the function of accommodation is distinctly separated from that governing the convergence, but that the nerves from each root pass separately out from the brain and that they are only united within a common sheath after they have traversed a considerable space as separated cords. All these considerations suggest that these two functions, which usually act in close agreement, so act as a result of habitual, not of organic association. In such a case, training, or a necessity which interposes important obstacles to the habitual association of action, quickly enables the individual to dissociate the two functions absolutely.

The practical issue of this paper is the consideration of this subject from the standpoint of the important deductions which Donders draws in regard to strabismus. These deductions are familiar to all, but I will repeat them. They are formulated by him thus:

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* Read at the International Ophthalmological Congress, Edinburgh, August 10, 1894.

" 1. *Strabismus convergens almost always depends upon hypermetropia.*

" 2. *Strabismus divergens is usually the result of myopia.*"

The argument is based upon the necessity of extraordinary tension of the accommodation in hyperopia, and therefore of the necessity of a correspondingly excessive tension of convergence, which at length results in permanent contracture of the converging muscles.

Consideration of the facts already mentioned does not sustain this line of argument, and only a single fact remains as an apparent confirmation and proof of this important and ingenious doctrine. This fact is the interesting and unquestioned one that with the application of convex glasses the converging strabismus, in a certain proportion of cases, disappears, at least in some measure, to return immediately upon the removal of such glasses.

Such a striking fact can not be regarded as a coincidence, and as convex glasses applied to hypermetropic persons are supposed to have no especial office except to relieve the accommodation, the deduction is easy and natural that relieving the accommodation also relieves the tendency to squint. But the assumption is not correct either in respect to the result of accommodation upon the convergence or in respect to the action of the convex lens. Three essential facts must be considered:

1. Converging strabismus is, in not a few instances, the result of the instinctive effort to force the visual lines into the same horizontal plane in case of a normal tendency of one of these lines to rise above the other. This condition of hyperphoria, or perhaps of hypertropia, in which the image of one eye tends to appear above the other, or actually rises above, is a condition for the relief of which the subject will make the most strenuous efforts. So long as it is not overcome, the patient must acquire the faculty of mental suppression of one image—a result most easily obtained when the images are widely separated by decided squint—or see all vertical objects as though they were leaning. His own equilibrium depends upon the apparent equilibrium of surrounding objects. The instinct therefore to correct an apparent inequality in the height of the images seen by the two eyes is most urgent. In many such cases the patient, in the effort to reduce the images to a horizontal plane, willingly sacrifices single vision in that plane, and converging strabismus results.

I have elsewhere discussed this subject, and can not here enter into the details further than to assert that in an important proportion of cases of convergent strabismus a tenotomy properly done upon a superior rectus and resulting in bringing the images of the two eyes to the same horizontal plane will at once and without further procedure relieve the convergent squint.

2. In many instances it is a result of an effort to bring both eyes to a plane differing from that to which they normally tend. And it is, so far as my observation extends, only in such cases as depend on an excess of tension of the vertically acting muscles of one or both eyes that convex glasses have the effect of relieving the squint.

3. Another essential fact in relation to the relief obtained in this respect from convex glasses is that such a glass acts in a double capacity, and that its rôle in relieving strabismus is not in its capacity for relieving accommodation, but in its character as a combination of prisms. If a pair of convex glasses is placed before the eyes of one of these people, a close observer can in some instances detect at once the fact that one of the eyes seeks the position above, the other the position below the center of the lens, or at least lower than the first. Many photographic portraits which I have made show this phenomenon beautifully.

In this manner the images may be more easily brought to the horizontal plane. Let it be remembered that in a glass of 3 D. the passage of the line of vision a third of a centimetre above or below the optical center is equal to the use of a prism of one degree, and that two such glasses will serve as a very material aid in maintaining horizontal images, and that hence the tension in this respect being relieved, there remains less occasion for the extreme convergence.

The fact that this may be the action of the convex glass is shown by another fact—namely, that we may remove the spherical glasses and replace them by prisms with their bases up and down, and the effect is equally striking. This has not happened in every instance in which I have made the experiment. It is an advantage of the spherical glass that the patient may adjust the eyes to a certain degree of prisms which is not so easily determined by the surgeon, and again it is quite possible that the improved sight in some of these cases tempts the eye to seek the relief to the hyperphoria through the glass, as the prism alone does not. However that may be, I have found the prism to fail only in such cases as required the aid of the glass to obtain fairly good vision. Further, a strong cylinder with its axis horizontal or nearly so, if it serves to clear the vision by correcting an astigmatism, acts as readily in relieving some strabismus cases as does a spherical glass in cases of pure hypermetropia; and it is also true that in some of these cases concave glasses are quite effectual in relieving the squint. There also occur many instances in which both eyes deviate vertically, and in the same direction, either equally or unequally. If we place in such a case a small card before one eye in such a way as to exclude it from fixation, the excluded eye may be seen to rise or fall as the case may be in a very marked manner. Transferring now the screen to the other eye, its behavior is similar to the first. If the first rose behind the screen, the second also rises. Such cases of double vertical divergence, as the result of the excessive tension on the opposing vertically acting recti, will often cause the eyes to squint inward, and a relief to this tension, either by prisms symmetrically placed or by relaxation of the excessive tension for both eyes, will also relieve the tendency to squint inward.* In such a case a pair of strong convex glasses may act as two vertical prisms placed with their bases in the same direction.

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* This visible deviation is not essential to our knowledge of the excess of tension of the vertically acting muscles; indeed, it is only found in cases of gross deviating tendencies. Nor is the patient always

In many hundreds of cases in which there have existed great or small deviations of the visual lines, and in which determinations as accurate as could be made of the deviations or deviating tendencies before and after the employment of atropine, I have found no such uniform difference in the muscular conditions before the use of atropine and after the accommodation has been paralyzed as to lead to the suggestion that any change is to be expected in these two conditions beyond the incidental and entirely temporary disturbances which may be brought about by the sudden admission of much light through a dilated pupil or the indifferent adjustments sometimes made by persons not seeing clearly. The disturbances of balance are quickly eliminated by calling the attention of the patient to the necessity of recognizing exactly what is seen. If cures of slight cases of strabismus have occurred under the use of atropine or of eserine, the relief has come, in my opinion, from the inability to see clearly, thus enabling the patient to tolerate a slight confusion of images vertically and not from the relaxation or the stimulation of the accommodation.

There occurs in some cases of moderate esophoria a slight exophoria when strong convex glasses are applied; but while such exophoria may be indicated by the phorometer, the power of abduction is not generally increased. In these cases either a hyperphoria or a double vertical anomaly exists or the glasses, by virtue of the distance between their optical centers, act as prisms with the bases out. I have found no case which did not come under one of these two classes.

There is neither time nor necessity to go into statistics in regard to the views here presented. They are based upon close and practical observations of many hundreds of these cases, and I am sure that they will stand the test of critical examination. The conclusions at which I have arrived, from my study of this subject during many years and from abundant material, may be summarily stated in the following propositions:

1. There is no essential connection between the function of convergence and that of accommodation; such connection as exists is incidental and the result of habitual association of the two functions.

2. The proportion of the cases of converging strabismus associated with hypermetropia, and of diverging strabismus associated with myopia, has been greatly exaggerated.

3. That the cases of strabismus which are relieved by positive or negative spherical glasses are cases of hypertropia—that is, of a deviation of one visual line above the other, or of a deviation of both eyes upward or downward—and that the relief obtained through such glasses is largely through the action of such glasses as vertical prisms.

4. My observations have led me to believe that excessive accommodation is not directly a causative influence in converging strabismus.

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THE INFLUENCE OF THE EYE ON CHARACTER AND CAREER.

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Why is it that so many children wear glasses nowadays? Is it because their eyes are not so good as were the eyes of their parents? Or is it because more is known about the eye than formerly, or that modern habits and occupations tax vision more severely than in the days of our forefathers?

Almost daily the oculist is asked such questions as these, for the enormous and increasing average of spectacled children now to be seen in the streets and shops and in our schools and homes is at last, and none too soon for the gravity of the interests at stake, attracting the layman's attention, the attention which has to be arrested and educated before remedies or reforms can be made widely effective.

The oculist is aware that this condition of affairs is increasing, but it may be pointed out at once that while this state of things calls for prompt and most serious consideration, it does not imply necessarily a proportionate decrease in visual power and quality, but a decrease indicated by many modifying factors; among them, on the one hand, the superior advantages and facilities, the better knowledge—more varied and more exact—of to-day; on the other, the multiform mischiefs which bacterialize our civilization. Many more children of former generations would have worn glasses but for ignorance, since outlived, and many of the children now wearing them are victims, not of necessity, but of either their own or some other's violation of now well-understood laws. Then, too, city life—with its swift-shifting glimpses at short ranges, frequent and abrupt variation of range, its smoke and dust-vitiated medium of vision—subjects the eye to more continuous and more complex strain than do the long ranges, comparative monotony of view, and the serene, breeze-cleansed expanses of the

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able to discern any motion when a card is passed before the eyes alternately.

The lesser degrees of this anomaly can in many cases be determined only through the means of indirect tests. For example, an esophoria of several degrees with an excess of abduction most commonly indicates an excess of tension of the vertically drawing muscles, with an actual dynamic condition of exophoria so far as the tensions of the laterally acting muscles are concerned.

Many cases of what appear to be simple esophoria are in fact modified to an important degree by this too great tension on the part of the upward or downward acting muscles.

Among the class of considerable esophoria in which the converging ability is materially less than normal—say six or perhaps eight inches—in the majority of instances the convergence increases at once to three or four inches if the superior muscles are equally and properly relaxed.

To determine whether the upward or downward acting muscles are the factors in the excess of tension vertically becomes a matter of importance. It is not the purpose of this paper, however, to discuss the diagnosis of these cases, and they are only alluded to in their bearing upon the subject of deviations from indirect tensions.

country; and we tend more and more to cities, and to enormous cities.

Ophthalmology is a young science. Scarcely thirty years ago (and even yet in some quarters still prevailing) the common notion was confined to hunting up, in the latter years of maturity, a pair of "specs" with which to read or sew, and to the old unintelligently patient recognition of the defect without thought of a remedy (regarded, too, on the whole, as being, at any age under fifty, an affectation or a megrim), as a condition too much a matter of course for sympathy, as an inevitability, like old age or death.

But investigations and experiments in the study of the eye have been so rapidly and conspicuously advanced by the same impulse of progress which has marked this brief period in all departments of science, with results of such peculiar value and brilliancy, that to-day it is practicable, as well as obligatory, for the profession to so present the science of sound vision to the general public that the possession of it will be seen to be one of the chief determinative factors in the formation of character and in the selection of occupation; and therefore the question of how to possess and conserve it becomes a consideration of the first magnitude in its bearing on the development of the individual and his particular share in and contribution to communal development.

In asserting for the influence of the eye such extraordinary importance I am not ignoring other—and some in themselves even greater—agencies in the shaping and outcome of human affairs, such as heredity, early impressions, associations and training, well-guided or neglected adolescence, happy or ill-assorted marriage, profligacy, misogamy, and the both far-reaching and close-pressing effects of the struggle for food and shelter which, from cradle to grave, marks the passage of most lives. But these great agencies have received and are (in augment) still receiving such careful and enlightened consideration that both history and philosophy and, in a more signally influential manner, fiction, alike bear its stamp *imprimis*. Yet it may be said of every one of these agencies in respect of their degree and kind of effectiveness, that they are in a first and notable sense in the lead of the eye, since what we really see or what we think we see (and negatively, with very positive effects, what by defect of vision we do not see) has (first, last, and always) an influence upon feeling, thought, purpose, and action—upon our whole decision and conduct, as inevitable as that of breathing upon life, and almost as unconsciously noticed. Consistently, then, it is in order for the oculist to preach his sermon from the ancient, not yet transcended text, "Let there be light!"

Something is very much the matter with our eyes. The evil, whatever its cause, is here, and in the present generation more or less established. In the case of our children it is possible to devise means for mitigating and reducing it, and perhaps also possible that its transmission to the unborn may be checked, if not to a large degree prevented.

In my limited space I shall do my best to express myself clearly, not expecting so much to present anything new or original as to draw and fix attention to what is already known or becoming so, and to present the subject in a new light. This will, I earnestly hope, for the sake of its bearing upon human welfare, especially of children, enlist the sympathy and organized co-operation of physicians, parents, and legislators.

The phenomena of physical and mental vision are so generally understood that they may for present purposes be briefly stated as follows: The purely mechanical reception and transmission of rays of light; the physiological action upon them by the dioptric media (cornea, aqueous humor, lens, and vitreous body); the production of image impressions upon the retinal membrane, and, through the agency of the optic nerve, the transportation of these impressions to the brain—constitute physical vision. The ensuing pyschological analysis and interpretation by the brain of images or impressions taken from the previous actual physical sight, or conjured up by correlation and then projected from within the mind, constitute mental vision. In other words, the eye itself is the purely mechanical register of externalities, upon which the mind, assisted by its agent, the brain (through its media of communication, the multitudinous fibers of the sensitive retina and optic nerve), deliberates.

In a pair of normal eyes the leading elements in the physical visual act are two in number. First, "accommodation," by which is meant focusing—accomplished in each eye individually and in a measure independently; second, "adjustment"—that is, a joint muscular act of the two eyes, controlling the direction of the gaze in order to "fix" the sight upon a given point. For instance, in looking at this page *each* eye must focus upon the print in order to see distinctly, and *both* eyes must, in interrelation, be properly adjusted in order to secure single vision.

The relations between these two factors are so interdependent that single vision depends upon a nicely calculated and exercised exactitude and reciprocal harmony in their functions, and thus it follows that acuteness and singleness of vision can be maintained only upon one point at a time. This is easily illustrated by simultaneously holding a finger of each hand in a direct line *outward* before the eyes, the one being held at a greater distance from the eyes than the other; then, on looking fixedly at either one of the fingers, it will appear single and distinct, the other seeming to be double and more or less indistinct, and the converse of this experiment is equally true.

This associated normal action between the eyes—*i. e.*, a condition in which single images are seen, both eyes operating simultaneously, termed by science binocular single vision—secures the correct perspective perception so essential to the estimation of distance, proportion, size, capacity, etc., simply indispensable to success in a large class of the absolutely necessary occupations of life. The stereoscope illustrates this. In this mechanism, as is well known, are two pictures seen as one in full natural perspective. In accomplishing this result, the negatives (which are not, as they seem, exact duplicates) are taken from two slightly separated points of observation, representing the angle of ocular adjustment. These images are fused into one scene by prisms so placed as to throw the impressions of the photographs upon such symmetric portions of the retinæ as will induce a muscular ocular adjustment coincident with that produced by the mind's estimate of the actual proximity or remoteness in fact of the objects represented by the photographs—our estimation of size being calculated upon our notion of the distance involved.

Want of harmony in the binocular relations results in one or more of several conditions, to wit: First, single vision, but maintained with difficulty; second, permanent or constant vision in one eye, while in the other there is continual or intermittent suppression of its visual images; third, alternate vision—*i. e.*, both eyes capable of seeing, but doing so one at a time; fourth, diplopia or double vision. Of these troubles, the last only usually receives attention, because it manifests itself so annoyingly in confusion of vision, while the other three conditions, of even graver importance, may be suffered from unconsciously, for permanent vision in one eye or alternating vision in both eyes, if sight is excellent in the acting eye, is liable to escape notice. The disorders to which these conditions are certain eventually to give rise, fail even of warning, because ignorantly attributed to other causes. This is one among the many strong arguments why regular and frequent professional examinations and treatment of the eye should be secured to all children, especially school children, without regard to the financial, social, or intellectual status of parents or guardians.

When, by reason of any inharmony of function, one eye is developed at the expense of the other, not only do both eyes suffer from the strain imposed, but serious accident to the better eye means practically the loss of both; and impaired vision or total blindness are but differing degrees of one and the same condition, involving, in the most serious all-comprising sense, obstructed education and inferior fitness for life-work; for whatever other good may be available, nothing can make up in the direction of effectiveness for the lack of that light—spiritual and physical—which comes by the eye alone.

If from any cause the eye receives impressions incorrectly, it necessarily transmits a faulty record to the brain, and the mind will as inevitably interpret on this erroneous basis. To such unconsciously falsified mental registry—due to purely mechanical variations in the reception of identical scenes or images in the eyes of different observers—may reasonably be attributed much of the inconsistency and discrepancy of human testimony and consequent miscarriage of justice, greater probably than has ever been estimated.

As the register of externalities, the eye determines the kind, quality, and result of mental as well as physical development, for although good sight will not insure a career of brilliant activity, nor bad sight positively doom its victim to seclusion and inefficiency, yet, other things being equal, the difference in the bearing upon character and capacity between good vision and poor vision is that of well-gauged impetus *versus* up-grade with brakes down—a difference calculated to bring originally identical abilities and ambitions, on the one hand, to vigorous, rounded development; on the other, to warping limitations and abortive results.

The main eye trouble which has developed with civilization is myopia, or near-sightedness. It is the prevalence of this particular defect which urgently calls for remedial measures, even arbitrary ones, if necessary; for the common notion that the myopic eye will come out all right with patient waiting—"will be outgrown"—is a disastrous fallacy, exactly the reverse being true. Myopia, if attended to in childhood, may be modified, and in the greater number of cases may even be arrested in its further progress by the science of the lens, which restores the possessor of such eyes to a good place in the competition with those of normal vision.

As a rule, successful business men, clever lawyers, able politicians, shrewd buyers and sellers, possess accurate, normal vision; their visual perspicuity measures their mental perspicacity. Mental operations of a speculative or complicated nature depend mainly for their success upon the power of the eye to explore accurately the largest and most important field of investigation in the world, the one affecting directly and more variously the purpose and the performance of life—the human face and mien. To normal vision, backed by mental force and acuity and spiritual insight, the facial expression and gestures of our fellow-beings may be likened to a marvelous chart whose signal code of attraction and repulsion, offense and defense, courage and fear, doubt and hope, heroism and selfishness, sincerity and deceit, affords a beautifully intelligible and infallible guide to a wise conduct of one's own affairs and to a wise recession from or co-operation in the affairs of others.

This chart is a blank to the myope; the profound effect upon the character and faculties, the whole rich moral and spiritual results of its study, must be left out of the count in his development. In the struggles which maturity brings to most of us, those whose vision is defective must go to the wall, and especially the myope is likely to be forced to abandon, either at the start or in the hour of fulfillment, the chosen pursuit for which he has expressly fitted himself.

A few years ago a gentleman came into my office to seek my advice about his eyes. He had acquired reputation and independence by first-rate quality of clerical work, which he now suddenly found a difficulty in pursuing. Examination showed malignant—*i. e.*, rapidly increasing, with degenerative changes—myopia, with blindness threatened. I was obliged to advise immediate and permanent abandonment of the calling he loved, and that on the threshold of his success in it, and prescribed an out-of-door life, cutting off the need of using his eyes at short range, necessitating a degree of mental inactivity alien to his temperament and ambitions. All this disaster and disappointment could have been prevented, or at least very much checked, if the trouble had been discovered in his childhood and corrected with glasses, and he had been kept from too close application first in school and afterward in clerical work. He could then at that early date have readily adapted himself to the circumstances and pressed forward in some other direction. He received the sentence I found it so painful to give with really heroic resignation, for which his rare good fortune in getting the supervisorship of gold mines somewhere in Honduras seem like a merited reward.

In its effect on character, to see much and to see well, or to see little and that indistinctly, makes all or very much of the difference between the easily duped egotist, who is such because his visual world is so contracted, and the philanthropist, who is such because he sees the whole drama of life sufficiently well to estimate rationally and nobly his own part in it. It may fairly be said that we draw our character in part out of the well of universal personality, and the myope lacks the bucket for this well.

Now, nearsightedness is not only a question of disadvantage and limitation, it is a matter of great danger; it tends, uncorrected, not only to an impairment of the function, but also to loss of the power of visual acuity; its increase is accomplished by pathological changes and may at any moment culminate in detachment of the retina, which involves partial or total blindness, rarely, if ever, curable.

No one not himself an oculist can properly judge of the condition of his own eyes. This is particularly true of one who has never seen well, as there has been no previous better seeing to enlighten him. Myopia, hypermetropia (far sight), astigmatism (irregular sight), and abnormal binocular relations may, any one of these, be present in a greater or lesser degree unknown to the sufferer so long as pain or blindness do not manifest themselves. Often when I walk a few blocks or enter a car I see eyes more or less in need of the oculist's attention, and in many instances the need is imminent if the eyes are to be helped, and yet the owners seem to be, and I think generally are, unaware of what is before them. We are not yet authorized, except in instances of immediate mortal risk, to save people without their permission, and though personal liberty is not without its sanctity, it does seem really pitiful to be obliged to act in the unsamaritan manner and pass by on the other side. Even our patients, coming to obtain our advice, passing their own judgment thereon, do often discredit our warnings, partly from a notion that the oculist is overstating things which lie in his line, and partly from egotism and a determination not to believe.

If the incalculable value of normal vision is realized, so will be the gravity of the situation embodied in the scientific dicta that normal vision is uncommon, and that with children (especially school children), the potential parents of the race, defective vision, and especially myopia, or tendency to myopia, is so general as to be almost the rule!

The nearsighted child is generally at the disadvantage from the start of not being known to be myopic; the child therefore suffers in feeling and in character from the perverting effects of dissympathy and misjudgments; the instinctive diffidence and bashfulness born of uncertainty are misunderstood as obstinacy and unsociability. I can easily recall instances where bright little fellows who were unfortunately myopic were jeered at by their schoolmates and chided by their teachers for not reading sums readily or correctly from the blackboard, when the secret was they actually could not see distinctly. The others could see clearly, and the failures of the former were attributed to obstinacy or untruthfulness. In several of these instances I have had a personal part both as a youthful companion and later as a medical adviser, and therefore know whereof I speak.

In childhood the eyes should be watched, and the tendency to myopia or other defect be promptly and skillfully attended to. As a matter of course, we have long been accustomed to taking our children for inspection to the dentist; it would be of much greater result were we in the habit of periodically inquiring into the status of our children's eyes. This threatening mischief—at least in its increased prevalence—can undoubtedly be traced in a great degree to the changes in our modern systems of education. In my own school days the hours of school covered the whole business of it; within them we learned and recited our lessons and then rushed out to care-free frolic. To-day school sessions are nearly or wholly absorbed in recitations only; thereafter the pupils are to be seen lugging home their text-books for evening and morning work at the cost of the play and rest, the entire change so necessary to healthy growth. And I am doubtful whether the degree of education afforded by the methods of to-day surpasses by virtue of this plan that of a generation ago. If it does, what avails it if we have suffered enduring physical loss thereby?

The entrance upon school life in the case of children showing either inherited or acquired near sight should be postponed, and they should be taught, as far as possible, textually, by the ear rather than by the eye, and outdoor life and sports requiring accurate *distant* vision should be encouraged. This course will insure results highly satisfactory. Certain plain, simple, general rules for the use and care of the eyes should be taught in schools and emphasized by the teacher's watchful interest in their observance, such as that there should be neither study nor reading except by a good light (daylight failing, a steady oil light serves next best) falling over the left shoulder, brightening the page while leaving the eye itself in comparative shadow; no reading in cars or other vehicles (note the universal violation of this rule); that the sense of strain or fatigue should be immediately regarded by submitting to rest or change of work. Growing children should, as a rule, do no evening studying; what they might lose at the time of book knowledge will be immeasurably more than made good to them in the added store of health.

In the matter of selecting correcting lenses I wish to strongly emphasize that it is the province of the oculist, not of the optician. The latter is rarely scientifically qualified, or if he were, could only continue to be so by a study and practice which would leave him no time as an optician. It is the business of the optician to prepare and fit the glasses specified in the oculist's prescription. We should not think for a moment of passing by the physician and calling in the druggist to attend a child in scarlet fever, for instance; yet precisely this course is often followed in the case of defective vision, and almost every oculist sees daily the mischiefs done by acting on the well-meant but irresponsible advice of the optician. So well is this becoming recognized to-day that an optician of repute will very seldom undertake to fit glasses except by the prescription of the oculist.

I hope it will not seem narrowly professional in me to reaffirm, in behalf of the children, that everything depends upon vision and upon caring for it in time. The scope of vision is the range of our whole possibility of aspiration and delight; it covers in all directions utility and livelihood, the ideal, art, beauty, in whose inspirations all latent gifts are quickened. What can hearing, or touch, or smell do in the search for new planets or deep-sea pearls? The astronomer, the analyst, the geologist, the botanist, the physiologist, the artist, the sculptor, the explorer, the chemist, the machinist—these and all their kind are Nature's great interpreters by the light of the eye. And from all these, and kindred fields of highest service and distinction, defective vision shuts out its howsoever gifted victims.

I speak with a depth of feeling and conviction that will be quickly and sympathetically comprehended when I say that I speak as the burnt child. My own small craft in life's great fleet was very near to being wrecked on the hidden reef of myopia! I shrank instinctively where my playmates rushed in; they saw clearly where to me all was indistinct in range and blurred in detail. I was unconscious of the defective vision and so were my companions, who misjudged and in many instances imposed upon me, for the myope is not a close observer.

Close attention to my studies increased the myopic condition. The skill of the oculist first gave me sight after a childhood passed in the dusk. For weeks after the first use of the correcting lenses I was occupied, almost to the exclusion of all other interests, with the miracle of the world I had never seen! Leaves, grass, the forms and plumage of birds, the shapes, colors, and movements of animals and all sorts of living creatures, the common things of daily use, the distant hills, the sky with its clouds by day and its stars at night, were all revelations, dazzling, delightful, engrossing; but most of all was I astonished and charged to the mind's brim with a jostling rush of unspeakable reflections and provisions as for the first time I saw distinctly the features of the human face with their wonderful play of thought and emotion—an experience of both gain and loss, only to be adequately gauged by one who has passed through it. And the more impressive will this appear when it is remembered that mine was a case in exception to the rule, for usually after a long period of no correction myopic eyes can never be made to see normally, and are, moreover, in the ever-threatening danger of losing what little vision they yet retain.

To further emphasize and illustrate the necessity of caring for the eyes in childhood, I will cite a very interesting and complicated case which came under my observation. The trouble was astigmatism, about which we hear so much nowadays. The patient was forty-four years old. At the age of thirty he had been in active business life for some years, and began to perceive that he did not see as well as others and that it troubled him to work. He was successful and persisted until it was unendurable, then gave up work and traveled. He had put himself in charge of specialists, one of whom was a neurologist. He also visited an optician. By the latter a fatal mistake was unwittingly made in giving him certain glasses which required excessive exercise of the focusing (ciliary) power, thus aggravating the symptoms. Now, because of the fact that these glasses, by forcing his eyes to constantly overfocus, enabled him to see distinctly, the other fact, that this constant focusing steadily increased the original difficulties, escaped detection. Fourteen years later, when he had been pushed to the verge of insanity and to suicidal impulses, he happened to consult an oculist, and, thanks to the great general and special advance in ophthalmology during that period, it was possible after a long course of patient manœuvring to induce the ciliary muscles to relax and the eyes to accept proper glasses; since when he has been to some extent able to resume business, though inevitably under restrictions owing to the effect of so many years of ocular mal-habit. All this could have been averted by early attention in childhood.

My chief object in this paper is to show good convincing reason why it is the duty of citizens and parents to demand that the eyes of our children throughout the period of school life shall regularly receive skilled examination with a view to secure to them by protected and corrected vision the best possible conditions for development of character, and, as a consequence, the right selection of occupation with fair prospects of success.

Citizens and parents in the legislatures ought to frame and pass bills securing this benefit to our children, if citizens and parents out of legislatures ought to ask for these measures. It is a plan requiring to be founded upon authority, secure above the fluctuations of ignorance, impulse, or sloth. In my boyhood I used upon occasion to hear my grandfather say, speaking not profanely but profoundly, "Ignorance is the devil!" and of course the welfare of children should not be left to it, for the devil contests every step of the way with progress.

Examinations could be conducted by boards of health in co-operation with boards of education, as is now the case in the matter of vaccination. Records of these examinations, for subsequent reference and comparison, should be carefully made and filed, and certificates of details and advice could be issued to parents and teachers, which could not but assist them to more intelligently direct and control the development of children. Parents might do good supplemental service by securing additional examinations through their private medical advisers, and the certificates of the latter might serve in place of or additional to the legal or public examinations. If parents in some instances might not appreciate the serious importance of this plan, it seems reasonable to believe that in many others they would; and, as in all innovations, obstacles and prejudices so besetting at first would yield to time and the force of the accumulating proofs of both the necessity and the wisdom of such a measure. Those who, fortunately possessing sound vision and constitution, might derive no positive benefit, would at all events receive no injury, while the happy results for the many would more than justify the plan. Recall for a moment the case of the man self-exiled in Honduras. Had he when a child been living under laws requiring early and adequate examination of his eyes, he would, ten chances to one, have been following successfully now his chosen avocation with that sense of efficiency and security so cheering in its effects upon the disposition and temperament, and so broadening and ennobling to the character.

As a means of presenting this plan tentatively and practically, I would suggest what might be termed "Fund Examinations," in which a school or community by a trifling personal subscription raises a sufficient sum to secure the services of men competent to conduct these examinations and advise thereon. Under the practical working of such a scheme we should, I am convinced, far better comprehend the nature and tendencies of our offspring and often discover in hitherto puzzling peculiarities the exact adaptabilities for special paths in life. Much of the underlying *latent* unknown will become manifest. The universal anxious quandary of parents expressed in the too familiar phrase, "What shall we do with the child?" will be solved in the best way *through the child itself*, and with the splendid outcome of a very great diminution in the number of failures and in a vast increase in the successes of life!

. . . .

The State is made up of units. The units are the people. Of these are you and I. A duty, inherent in our citizenship, demands that, in our allegiance to the State, we shall protect every individual unit; and, conversely, the State owes this duty to its component parts, to you and to me and to every one.

It is four years since I first advocated legislation in this direction. Shall four years again elapse before a decisive move is made?

3 East Forty-first Street.

GLIO-SARCOMA INVOLVING BOTH OPTIC THALAMI.*

By CHARLES E. NAMMACK, M. D.,
VISITING PHYSICIAN, GOUVERNEUR HOSPITAL, NEW YORK.

Abraham K., aged twenty-three years, Russian, furrier, was brought in an ambulance November 3, 1894, in a condition of profound coma. Of his family or his previous history nothing could be learned from his shopmates, except that for three days previously he had complained of headache and diarrhœa.

Examination.—Patient pale and emaciated. Tongue dry, brown, and fissured. Pupils symmetrically contracted. Eyeball on the right side slightly protruded. Evidence of recent blistering on the nape of the neck. Moist râles in the lungs. No cardiac murmur. Urine drawn by catheter showed a trace of albumin. Paralysis of motion on the right side. Sensation preserved on that side, as shown by efforts made with the left hand to remove irritation caused by the pricking of a pin. Temperature on admission 100·4° *per rectum*, ten hours later rose to 104·8°, and thereafter fluctuated irregularly until death occurred six days after admission. Pulse on admission 90, and steadily increased until it reached 160, in the last thirty hours of life. Respirations ranged from 26 to 56. These latter changes were coincident with the development and progress of a pneumonia of the right lung. The case presented many of the features of another observed in the hospital a year before, and reported in the *Medical Record* of December 2, 1893, in which autopsy had shown extensive hæmorrhage due to syphilitic arteritis in a young man of twenty-two. It was thought that the same pathological condition was present in this patient. The brain was therefore sent to the pathological laboratory of the New York Hospital, and the writer is indebted to Dr. George P. Biggs for the following report:

"The brain is inclosed in its dura mater, and has been in weak alcohol a short time. The dura and pia appear normal. There is very slight flattening of the convolutions of both hemispheres and marked bulging of the floor of the interpeduncular space. The lateral ventricles are greatly dilated, contain serous fluid, and measure when freely laid open eleven centimetres and a half in length and five centimetres and a half in width. The ependyma of the outer portion of the floor of each lateral ventricle is opaque. Upon removing the corpus callosum and fornix a soft, smooth, grayish tumor is found, completely filling the third ventricle and the aqueduct of Sylvius, and blending with the optic thalamus on each side so as to form a bridge between them on a level with their superior surfaces. The tumor lies beneath the velum interpositum, and is attached to it only over a small area, one centimetre in diameter, near its center. At the point of attachment the velum is a little thickened, but is elsewhere perfectly normal in appearance. Aside from the velum, the tumor has connections only with the upper half of the inner surface of each optic thalamus and there is not the slightest difference in the extent or completeness of the union on the two sides.

"The tumor measures six centimetres antero-posteriorly, three centimetres transversely, and two centimetres vertically.

"The left gyrus fornicatus, at a point near the posterior termination of the corpus callosum, is a little firmer than the surrounding tissue, and contains a few punctate hæmorrhages.

"Sections of the tumor in the third ventricle show it to be a very vascular glio-sarcoma, the cells of which are mainly round or ovoid and of medium size. Granular intercellular substance is fairly abundant, but very few distinct gliomatous cells can be seen. Some of the blood channels have distinct walls, but most of them are simple canals in the tumor tissue. The velum interpositum at the site of its attachment to the tumor is infiltrated with cells of the same character as those forming the tumor. The hardened area in the left gyrus fornicatus presents hæmorrhages of considerable size and great thickening of its capillary vessels due to development in them of cells like those of the tumor. A few such cells are also found in the pia over this area.

"It is impossible to determine the seat of primary development of this tumor. Judging from the extent of attachment, it would seem quite possible that the process might have commenced in both optic thalami, and the tumors later united in the median line; or it might have started in the velum interpositum. Development from the walls of the capillary vessels is clearly shown by a study of the more recent tumor in the gyrus fornicatus."

29 East Twenty-fourth Street.

The Society of Alumni of Bellevue Hospital held its fourth reunion in the form of a dinner at the Hotel Brunswick on Tuesday evening, the 12th inst. The president, Dr. Charles Clifford Barrows, acted as toast-master. There was a large company, and the speeches were highly entertaining.

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* Specimen presented before the New York Neurological Society, December 4, 1894.

A CASE OF

TUBERCULOSIS OF THE PHARYNX.

By E. HARRISON GRIFFIN, M. D.,
LECTURER ON DISEASES OF THE THROAT AND NOSE
AT BELLEVUE HOSPITAL MEDICAL COLLEGE;
ATTENDING SURGEON FOR THE THROAT AND NOSE,
OUTDOOR DEPARTMENT OF BELLEVUE HOSPITAL, NEW YORK.

An interesting case of tuberculosis of the pharynx came under my observation during the past year—interesting because the family history was unique, the diagnosis at first rather obscure, and the ability of the patient with a high temperature to attend to her affairs.

These cases are very uncommon. Willigk, in 1,317 autopsies of tuberculous cases, found the larynx affected in 237 cases, while the pharynx was affected in but one case.

A girl, aged nineteen years, came under my direct care in April, 1894, complaining of a slight accumulation of mucus which she hawked out of her throat in the morning. No cough was present at this stage.

An examination of her larynx was negative—no inflammation, no congestion. The pharynx showed a slight congestion, with here and there grayish-white spots scattered over the membrane.

I showed the case at this stage as one that portrayed tuberculosis of the pharynx.

The patient had no cough, did not feel sick, and was in fair physical condition. Her appetite was good and her sleep excellent.

The family history of this patient was unique. Her grandfather was alive, aged seventy-five years; her grandmother alive, aged eighty years; her father alive; her mother had died of typhoid fever at thirty-two years of age; no history of consumption in the family.

An examination of her lungs was negative. I made several examinations at this period and found nothing pointing to any lung disease. She denied any night sweats, but would have a light chill in the morning about nine o'clock; at twelve a fever would occur, and reach its highest point about half-past three in the afternoon. The fever at no time embarrassed her beyond making her thirsty and desirous of drink.

One day at the clinic I put the question to her: "Have you any fever to-day?" "No, doctor." The temperature taken by her mouth registered 104·4°; she came to the clinic unattended, and told me she would not know she was sick unless I told her.

An examination of the sputum showed the tubercle bacillus in large numbers. An examination of the lungs was negative, showing primary infection of the pharynx.

For weeks she had this high temperature in the afternoon; toward evening it would disappear, and at night she did not feel thirsty—her method of telling the absence of fever.

The case made rapid progress toward dissolution.

The small grayish spots in the pharynx extended, broke down into ulceration, and coalesced. Pain became a factor in deglutition and a cough made its appearance; the lungs were not recognizably involved till a month after the pharyngeal infection.

Death took place in August. I found that creosote internally administered relieved the fever quicker and more permanently than any other medication.

The family history, the high fever, and the ability of the patient to come and go four miles for treatment with this high fever, rendered this case very instructive and interesting.

The quick time of dissolution conforms to the usual history of these cases: the nearer the air the tubercle bacillus is ingrafted, the quicker the death of the patient—generally within four months after the primary inoculation.

I have treated one case of laryngeal phthisis where the disease ran two years before the patient succumbed. Pharyngeal phthisis kills generally in from three to four months.

112 West Forty-fifth Street.

SEPTICÆMIA
FOLLOWING CONFINEMENT OR MISCARRIAGE.

A TREATMENT BELIEVED TO BE NEW.

By D. ROSE, M. D.,
CHICAGO.

For the last three years or more I have been taking a course in the above-named cases that is original with myself, and one which I have now tested in a sufficient number of cases to justify me in recommending it to the profession in general.

There is no doubt that many women have lost their lives from septicæmia, and I frequently hear of such cases still; but I venture the assertion that no case need result fatally from that cause if the following easy treatment is promptly and properly carried out.

If the above-given assertion be true, it is the duty of every physician taking such cases under his care to be influenced by another's experience.

As soon as any symptoms show themselves I bring the hips to the edge of the bed, introduce a bivalve speculum, and, with borated cotton in a Bozeman's long dressing forceps, wipe out thoroughly the whole uterine cavity until the cotton comes away odorless and clean. I then dip a bunch of the cotton in iodized phenol and daub it over the whole interior of the uterus.

It has never caused pain or the slightest unpleasant symptoms of any kind, and from the first treatment (and one is often sufficient) I have never seen the symptoms increase. In a few hours the change for the better is surprising, and the rapidity with which involution takes place is simply marvelous.

I give internal remedies as indicated, and repeat the treatment next day, and every day in cases requiring it, until the indications cease.

Cotton will wipe away shreds which the intra-uterine douche leaves behind. There is no danger of fluid passing through the Falloppian tubes. You can tell when the uterus is cleansed and the exact odor and appearance of what you get away, which you can not do when using water.

The application of iodized phenol has all the advantages of that of mercury bichloride, and the rapid involution which follows its application can not be realized until it is seen.

Lacerations of the cervix are never left with thick, pouting lips and callous edges, and it will save from the necessity of many operations for the repair of old lacerations.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, FEBRUARY 16, 1895.

THE IMPROVEMENT OF PHARMACOPŒIAS.

The *British Pharmacopœia*, the last edition of which appeared in the year 1885, is soon to undergo another revision under the direction of the General Medical Council. In view of this fact the *British Medical Journal* announces its intention of publishing a number of articles calculated to bring out the deficiencies of the present *Pharmacopœia* and to point out in what directions it can be improved. The first of these articles, dealing with the subject from the prescriber's point of view, is by Dr. T. Lauder Brunton, and it appears in the issue of February 2d. Dr. Brunton occupies most of his space with discussing the question of why it is that the *Pharmacopœia* itself is in the hands of so few medical men, while almost all of them possess Squire's *Companion to the Pharmacopœia* or Martindale and Westcott's *Extra Pharmacopœia*. He finds the answer in the fact that the *Pharmacopœia* gives a great deal that the practicing physician does not care to read and has no occasion to read, while it is lacking as to many things that he does wish to know about and which are given in the two other works mentioned. He goes on to say that it is not the physician only that finds himself in this position, but the dispensing apothecaries also, who do not, as a rule, make their own preparations, but buy them from large manufacturing firms. As to both these points, the profession of medicine and that of pharmacy stand in much the same relation to the *British Pharmacopœia* as they stand in this country to the *United States Pharmacopœia*, and it is well known that apothecaries depend far more upon the dispensatories than upon official pharmacopœias. There is much force in what Dr. Brunton says on this point, but in our opinion it would not do for full directions for the preparation of pharmaceutical products to be omitted from a pharmacopœia, for, if they were, there could hardly be any practicable way of requiring that such preparations made by manufacturing pharmacists should conform to a definite standard, and such conformity is unquestionably most desirable.

Among the other suggestions made by Dr. Brunton is that of the usefulness of having stated in a pharmacopœia not only the individual doses of pharmaceutical preparations and crude drugs, but also the total amounts, regardless of individual doses, that may properly be administered in the course of twenty-four hours. Still further points on which he comments relate to the desirability of directions for making extemporaneous mixtures agreeable to the palate; to directions for the preservation of perishable drugs; to the desirability of reducing the size of the official pills, which patients often say they can not swallow; to recognizing such preparations as cachets and capsules; and to the addition of extensive tables of solubilities, together with statements as to how much of a drug that has been dissolved in a liquid with the aid of heat remains undissolved in the liquid after it has become cold.

In some respects, according to Dr. Brunton, even the directions for making preparations are quite inadequate and decidedly wrong in the case of some of the preparations given in the *British Pharmacopœia*. For example, under the head of *cataplasma conii*, he says, we find that an ounce of hemlock juice is to be evaporated to half its volume and then mixed with half a pint of boiling water and a quarter of a pound of linseed meal. He says that he has never made this poultice himself, and that he knows of nobody who ever has made it, but if it ever has been made, he would like to know who evaporated the hemlock juice and who made the poultice, because, he says, if the apothecary evaporated the juice and made the poultice it would be cold before the patient got it, while if the juice was evaporated at the patient's home there would probably be no proper dish in which to evaporate it. He adds that any ordinary person would simply use a little less boiling water and a little more linseed meal and leave the hemlock juice without evaporation.

THE DOCTORS OF THE NATIONAL GUARD OF THE STATE OF NEW YORK.

Last week we spoke in commendation of the conduct of the medical members (officers and privates) of the militia while they were on duty recently in Brooklyn. We knew at the time that the field and line officers of the regiments engaged appreciated the character of the medical men in their commands, and we have since been favored with weighty additional testimony to that effect. From an officer of one of the regiments we have received a letter—indeed, it reached us before last week's issue was off the press—in which he says that it seems to him that at this time it is very appropriate to have some mention made in the medical journals of the medical officers of the National Guard. He does not think that the general public is aware of the sacrifices they have to make—unless it may be their patients whom they have to neglect during their absence. He says that in his experience he has found the surgeons particularly attentive, not only to their medical duties, but also to their military duties. They are always, he testifies, exceedingly faithful, and their moral support to the commanding officer is much greater than is supposed. There is no member of the staff, he adds, to whom the commanding officer can so readily appeal as to his surgeon. The surgeons help him in the discipline of his command, and of course in the sanitary and commissary departments they are invaluable. Every article of food is passed upon by the surgeons, the cleanliness of the posts comes under their observing eyes, and they share with the rest of the command every danger.

"I would particularly," says the officer, "draw your attention to the professional conduct of Dr. Colles, our second assistant surgeon, who, on that foggy Monday afternoon when the First Battalion was assailed on all sides by missiles of every description, and two or three of the men were severely wounded, bound up in the most scientific and prompt manner the wounds of these men while the command was halted and drawn up in a square to receive any further attacks, a missile of some kind coming within close quarters of him every moment. Not a word was spoken in the square, there was absolute silence, and you can imagine what a dramatic scene it was. One man was carried along on a stretcher by the Hospital Corps, the hospital steward in close attention."

Of course, adds the officer, this is a mere matter of duty that may not strike one as being very much out of the common, and it is more in the direction of the great sacrifices the surgeons make which it seems to him should be noticed in medical journals. While everybody has to make sacrifices, he continues, the surgeons contribute doubly to the benefit of a command, because they give from their professional knowledge in addition to what they lose in the way of practice. He closes with an expression of his hope that we can be as enthusiastic over the doctors as he is.

Another commanding officer, Colonel Greene, of the Seventy-first Regiment, writes to us in praise of the medical officers on his staff. The surgeon, Major Marsh, he says, is "one of the most efficient and accomplished surgeons in the military service—either Army or National Guard," and he particularly commends Dr. Marsh's devices in the way of a portable chest containing medicines and appliances for use in either the armory or the field, and in the way of stretchers. Colonel Greene says that they are "generally conceded to be the best in the service, and were very much admired by professional visitors in Brooklyn." This interested us so much that we have since taken advantage of Colonel Greene's courteous invitation to us to inspect the appliances referred to and of Dr. Marsh's cordial offer to demonstrate and explain them. They are indeed excellent, and they are the result of Dr. Marsh's own ingenuity and generosity, for we understand that they have been provided at his own expense—indeed, much of the work of preparing them was done with his own hands. So far as it goes, the provision made by the State as regards such matters is very good, but it ought to go further; we think the State should see to it that every regiment is provided with a similar outfit. Moreover, each regiment ought to have at least four field cases of instruments, instead of only two, as at present. The National Guard can not be too well taken care of.

MINOR PARAGRAPHS.

HONORS TO BRITISH PHYSICIANS.

The *Practitioner*, which changed its editor and publishers at the beginning of the year, is but little altered in its general appearance. One novel feature in it, however, is calculated to excite attention and interest; we allude to a number of pages of short editorial paragraphs, each without a title of its own, but all grouped under the general heading of The Month. They are written in the first person singular, and probably by the editor, Mr. Malcolm Morris. They are very crisp and readable. One of them, published in the February number, reads as follows: "The New Year's honors, if, as usual, somewhat meager as far as our profession is concerned, have at any rate been thoroughly well bestowed. There are no two men more worthy of such honor as the sovereign can give than Sir Russell Reynolds and Sir John Erichsen, and there are none whose selection for the distinction could have been more fully ratified by the judgment of their profession. For my own part, I can not help feeling that the distinction should in each case have been conferred long since; it is satisfactory, however, that it has come at last. The Crown might, indeed, find some better way of doing honor to those to whom honor is due in the medical profession than the bestowal of titles which are often flung to fill the maw of an importunate party hack, or given in payment for that kind of political support which takes the form of checks. Peerages are open to the same objections, and there is something incongruous to my mind in the idea that men whose work has been the relief of suffering and the betterment of human life should be rewarded in the way that is deemed most appropriate for successful cultivators of the art of scientific slaughter and manufacturers of the materials of intemperance. Why should not distinguished members of the medical profession be sworn of the Privy Council? The Privy Council itself would be greatly strengthened by the infusion of a new element representing that profession which, according to Mr. Gladstone, is at no distant time to be the greatest power in the State. There is a special fitness in such a distinction for men whose training and experience must make their advice on matters relating to public health of particular value, and it is a curious anomaly that the Crown has hitherto had no medical men among its councilors. Professor Huxley is only an apparent exception, for the honor in his case was conferred in recognition of his scientific eminence and his services in various public capacities."

DOCTORS AS EXECUTIONERS.

The following letter of inquiry was printed in last Sunday's *Sun*: "If a man is sentenced to death by the electric chair, and after the current is applied and the doctor in attendance pronounces him dead his friends revive him through this new method or any other, does he gain his liberty, or must he serve the rest of his life in prison?" The *Sun's* answer was as follows: "The execution under the present law in this State isn't completed until the doctors have performed an autopsy. In other words, the doctors are executioners. After they have cut the criminal up there is no doubt about his being dead." This has an ugly sound, but who can demonstrate that the *Sun* is wrong?

SECOND-HAND MEDICAL BOOKS.

The publishers of this *Journal*, Messrs. D. Appleton & Co., having learned that one J. S. Dunbar, a canvasser for the sale of medical works in the State of New York, has offered and is still offering to supply physicians with any of their subscription books at reduced rates, request us to state that neither the individual named nor any other person can purchase *new* books of that class at any reduction from the advertised price. It follows, therefore, that books so offered for sale must be *second-hand* and have been obtained from the original purchasers either by exchange for other books or by purchase at second-hand rates.

MEDICAL FREEMASONS IN NEW YORK.

Apropos of a leading article in last week's *Journal*, on Medical Freemasons in Great Britain, we learn from a lay friend that in Kane Lodge, of New York, there are perhaps more medical brothers than in Æsculapius Lodge, of London. This seems eminently appropriate as the lodge was named in honor of Dr. Elisha Kent Kane, of the United States Navy, the arctic explorer, and its membership, which includes some of the most prominent men in clerical, legal, scientific, financial, and commercial circles, would be incomplete but for representatives of the medical profession whose names are known and honored wherever the English language is spoken. This is not surprising, for those that are Masons can easily recognize how the principles of Freemasonry would appeal to a medical man.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 12, 1895:

DISEASES.	Week ending Feb. 5.		Week ending Feb. 12.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	10	1	3	1
Scarlet fever	116	10	89	12
Cerebro-spinal meningitis	3	4	3	3
Measles	75	6	58	3
Diphtheria	167	36	163	31
Small-pox	1	1	1	2
Tuberculosis	99	96	93	150

The New York State Examination in Medicine.—The board of examiners, as is generally known, consists of three boards representing respectively the Medical Society of the State of New York (non-sectarian), the Homœopathic State Medical Society, and the Eclectic Medical Society of the State of New York. The first-named board, of which Dr. William C. Wey, of Elmira, is president and Dr. Maurice J. Lewi secretary, has recently submitted to the Medical Society of the State of New York a report of its work for the year 1894.

It is remarked that the following statistics, given in the report, should not be confounded with those prepared by the regents' examination department, as their records are made up annually to conform to their general method of compilation, which is based on the opening and closing of the academic year, August 1st to July 31st:

	Examined.	Passed.	Percentage of rejections.
Number of candidates actually examined, 536.			
Before the non-sectarian board	470	316	32·7
Before the homœopathic board	59	46	22·0
Before the eclectic board	7	3	57·1

The report says it was thought in 1891 that the average number of candidates who would yearly appear before the board for examination would be about 400. This estimate was based on the theory that the law admitting candidates to examinations was so stringent as to exclude all not well prepared to pass the tests. Candidates for admission must be of good moral character, as certified by two reputable practitioners of medicine; they must be graduated doctors of medicine who have attended at least three full courses of lectures at a registered medical school in three different years; and must have had the preliminary education prescribed by law. These exactions, it is remarked, tend to shut out the incompetent, and in consequence the percentage of rejections must be considered in this light. The discrepancy between the estimated and the actual number of candidates is imputed to two causes. Whereas, prior to 1891, the number of physicians who settled yearly in the State was from 700 to 800 (and this can only be estimated, as no exact figures are obtainable), now there are fewer than 400. The applicants numbered 536, as above stated. The natural increase in the population might account for a corresponding increase in the number of medical men; but the main cause is the fact that our State licenses have grown to be documents of such importance that most of the States having boards of medical examiners accept them as licenses to practice without exacting added medical tests.

The selection of questions properly grouped for examination purposes, says the report, is a task to which much time has been devoted, and the board invites criticism of its work in this particular, with the hope of improving on a system which has been generally commended. The questions are originally framed by all the examiners, each chair, through its three representatives, submitting, as occasion requires, 180 questions. A total of 1,080 questions thus obtained is referred to the question committee, composed of two members from each board. By that committee the questions are carefully studied and sifted, only such being accepted as are considered fair, that is, as requiring knowledge which every practitioner of medicine should have. To the committee's editor are then referred all accepted questions, and he in turn groups them in sets of fifteen in each topic, covering as nearly as possible every subbranch of the subject under consideration. On requisition of the regents, these groups are forwarded to Albany and the regents become responsible for printing and for the language used in framing the questions for publication. Thus far, twenty-one regular and three special examinations have been held, at which 2,520 questions have been asked, or 360 questions in each topic. A duplication of questions thus propounded and published to the world, says the report, is not desirable, but a point has now been reached where this is becoming essential if the board is to be freed from the charge of propounding queries which belong in the special fields of medicine rather than in its general field. Other similar bodies of examiners, it is remarked, submit and publish questions which indicate a far more difficult test for the license, but the method of marking seems to the board comparatively lenient as judged by the percentage of rejections. The board feels it to be its duty not to prevent a given percentage of those applying from being licensed, in order to maintain a standard, and prefers to act favorably on the application of all, no matter how great the number, whom it believes to be competent to practice medicine.

Under the provisions of the law it is permitted to indorse, as sufficient for practice, the licenses issued by other State boards of medical examiners, provided the standards of those bodies are not lower than ours. Numerous applications from various States have been received for this indorsement, but on investigation the board has in each instance found that the standard was not sufficiently high to warrant it in approving the documents submitted. The board earnestly appeals to the society to continue the work, inaugurated by the committee on legislation in 1892, of having bi-monthly transcripts of registration made from the books of the county clerks throughout the State. In this manner only, it says, can a comprehensive record of the registration throughout the State be secured, thus furnishing the opportunity of verifying or correcting the work of the county clerks. During the year many letters have been addressed to the board, calling attention to persons who are practicing medicine in various parts of the State without legal authority. It has been the board's custom to investigate all such cases and to advise prosecution where the offender is a newcomer; but when the case is one which has existed before September 1, 1891—*i. e.*, before the passage of the law under which the board was called into existence—it has advised against interference. The report goes on to say that the unfortunate dropping of the word misdemeanor from its former place in the work of codifying the medical laws, as reported to the Legislature by the revision committee two years ago, has robbed the statute of much of its worth. Through the energetic efforts of the society's committee on legislation both branches of the Legislature last year unanimously passed a bill correcting this defect, but, notwithstanding heroic efforts on the part of the profession throughout the State, the man who was then Governor vetoed the bill. In order to maintain the dignity of the licensing power now intrusted to its care, the board earnestly urges that the committee on legislation be instructed to introduce this measure anew before the present Legislature, in the hope of restoring the statute in its integrity. Since the society's last meeting two adjoining States have established State boards of medical examiners, the laws appointing them being modeled after our own.

The report further says: "The preliminary education of medical students and candidates for the licensing degree in this State is not satisfactory. While the standard is far above that established in other States, it is still insufficient and not on a par with the requirements exacted from students in other professions in our State. The following was unanimously carried at a meeting of our board, with the intention that it be embodied in our report to your honorable body:

"'*Resolved*, That in the opinion of this board the best interests of the public and of the medical profession would be materially advanced by gradually increasing the minimum requirements as to general preliminary education till no candidate is entitled to matriculate in 1897 at a degree-granting medical school in this State who has not completed at least a full high-school course.'"

The Cultivation of Diphtheria Antitoxine in Cleveland.—Dr. A. P. Ohlmacher, director of the laboratories of pathology and bacteriology of the Medical Department of the University of Wooster, Cleveland, O., informs us that, with the co-operation of his colleagues Dr. C. B. Parker and Dr. H. W. Kitchen, he has succeeded in rendering a horse proof against diphtheria in the remarkably short period of a month and sixteen days, during which time the advance was made from injecting 0·5 cubic centimetre of diphtheria toxines to injecting two hundred and fifty cubic centimetres. This part of the work was completed on February 5th. "The toxines," Dr. Ohlmacher goes on to say, "as shown by numerous tests on guinea-pigs, were highly virulent. The preliminary tests of the antitoxine show it to possess strong immunizing and curative value in guinea-pigs. After I have standardized the antitoxine it will be used on patients. I believe this gives us the first diphtheria-immune horse in this country. The experiments are made with no commercial motives in view, but simply for their scientific interest. I shall report in detail to the Cleveland Medical Society on February 22d."

State Care of the Insane.—The following resolutions were adopted by the Medical Society of the State of New York at its recent annual meeting:

Whereas, recent investigation of the condition and management of the asylums for insane in the city of New York has clearly shown that the system of county care under which these institutions are now conducted is a failure, as regards both its humane and its economical aspects; and

Whereas, the same is substantially true of the condition and management of the institutions for the dependent insane of the county of Kings:

Resolved: That both the dictates of humanity and the interests of the taxpayers demand that the principle of State care for the dependent insane, which has proved so satisfactory in the fifty-eight other counties of the State, should speedily be extended to the counties of New York and Kings.

Resolved: That the committee on legislation be instructed to request the Legislature to adopt such measures during the present session as will secure the transfer of the dependent insane of the counties of New York and Kings to the control of the State.

The Academy of Medicine's Section in Obstetrics.—Dr. Henry C. Coe has issued the following circular: "Having been recently elected chairman of the Obstetric Section of the Academy of Medicine, it is my earnest wish to revive the flagging interest in the meetings, as well as to improve the quality of the scientific work. I shall feel greatly obliged to you if you will aid me with your presence and influence, and will engage to read a paper or to take part in the discussions. Your views are far more likely to reach the general profession, who attend the meetings of the section, than is the case when they are expressed before a small audience of specialists."

Change of Address.—Dr. D. Rose, to No. 1064 Millard Avenue, Chicago.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 3 to February 9, 1895:*

Robertson, Reuben L., Captain and Assistant Surgeon. The extension of leave of absence granted is further extended fourteen days.

Kennedy, James M., First Lieutenant and Assistant Surgeon. The leave of absence granted on account of sickness is extended one month, on account of sickness.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending February 9, 1895:*

Bagg, C. P., Assistant Surgeon. Detached from the U. S. Steamer Mohican and ordered to the Naval Hospital, Mare Island, California.

Brathwaite, F. G., Assistant Surgeon. Detached from the Naval Hospital, New York, and ordered to examination preliminary to promotion.

Stoughton, James, Assistant Surgeon. Ordered to examination preliminary to promotion.

Society Meetings for the Coming Week:

Monday, *February 18th:* New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *February 19th:* New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Chemung (quarterly), Kings, Livingston (quarterly), and Westchester (White Plains), N. Y.; Baltimore Academy of Medicine.

Wednesday, *February 20th:* Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); New Jersey Academy of Medicine (Newark).

THURSDAY, *February 21st:* New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *February 22d:* Yorkville Medical Association, New York (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *February 23d:* New York Medical and Surgical Society (private).

Births, Marriages, and Deaths.

Married.

ROE—POMEROY.—In Boston, on Tuesday, February 12th, Dr. John Orlando Roe and Miss Jane Pomeroy.

Died.

BRADFIELD.—In Birmingham, Ala., on Monday, February 4th, Dr. John W. Bradfield, aged eighty years.

BUCKNER.—In Roanoke, Va., on Sunday, February 3d, Edna Bickham, only child of Dr. and Mrs. Leigh Buckner, aged sixteen months.

BYRNE.—In Brooklyn, on Wednesday, February 13th, Dr. Henry Vaughan Byrne, son of Dr. John Byrne.

FRASER.—In Charleston, S. C., on Friday, February 8th, Dr. Henry De Saussure Fraser, formerly of the Confederate Army.

Letters to the Editor.

THE FILTRATION OF MILK THROUGH ABSORBENT COTTON.

NEW YORK, *February 11, 1895.*

To the Editor of the New York Medical Journal:

SIR: In the article of Dr. Emily Lewi on The Milk Supply of New York in your last issue (February 9, 1895) the author has treated my suggestion of filtering milk before sterilizing it in a manner so uncommon in scientific literature that I deem it my duty to call special attention to this innovation.

At the last meeting of the American Pædiatric Society, in Washington (May, 1894), I reported on a method of cleansing milk by filtering through a thin layer of clean absorbent cotton, which process not alone removes the gross filth so often found therein (and in the sugar water), but also diminishes the bacteria in the milk to at least an eighth of their original number. About seventy experiments (of which fifty were of a bacteriological character), made in the course of six months by myself and by Dr. Kiliani, of this city, have demonstrated the feasibility of this plan of replacing the centrifugal machines of large milk establishments in the households of people of moderate means (*Archives of Pædiatrics*, July, 1894).

This method, since practically established in artificial infant-feeding, Dr. Emily Lewi described in the following words: "The process of filtration, to which attention has been somewhat directed of late, was employed. The Seibert aluminum filter, as of most recent date, was used."

This description naturally gives the impression that I had proposed to filter milk through a layer of aluminum (instead of absorbent cotton), all the more so as Dr. Emily Lewi, in the entire report of her critical experiments, carefully conceals the fact that absorbent cotton was used in this milk filtration by not even once mentioning the word cotton.

But this omission does not stand alone. In the discussion of her paper at the Academy of Medicine, Dr. Emily Lewi asserted that she had first sterilized the cotton discs used in her critical experiments, a statement which does not appear in the article itself, where it certainly ought to be, for it proves beyond all doubt that the increase of acid found in two of her three filtration tests was solely due to her unclean handling of the cotton. Increase of acid in milk means increase in the number of bacteria causing acid, and increase of bacteria in sterilized cotton means unclean handling after sterilization. Septic surgery and obstetrics have not yet entirely gone out of existence in this aseptic age, and we may now recognize the possibility of adding (instead of removing) dirt and bacteria to milk by filtering through unclean cotton. This discovery, in itself not surprising, has been scientifically demonstrated by two of the three experiments of Dr. Emily Lewi, and she ought to have the credit for it.

Three fourths of a column of your journal are devoted by Dr. Emily Lewi to "indicating the negative influence of filtration as delaying the souring of milk," yet she has seen fit to omit mentioning my only article published on this subject in the bibliography at the end of her paper. This necessarily prevents the unbiased reader from comparing the report of the numerous experiments made by Dr. Kiliani and myself with the three tests of Dr. Lewi, one of which speaks for and the remaining two speak against a possible value of cotton filtration of milk.

Among scientific men it is customary to make no such omissions as have been made in Dr. Emily Lewi's paper, because they prevent the clear understanding of the subject under discussion, and are not fair to the criticised and not creditable to the critic.

In conclusion, I will mention that the removal of gross filth from milk by centrifugal machines has for years been recognized by men like Soxhlet and Escherich as a correct procedure. Cotton filtration answers the same purpose, and keeps dirt not only out of the nursing-bottle, but also out of the alimentary canal of the infant, where, not being digestible, it is reinfected and can only do harm. A. SEIBERT, M. D.

STRANGULATION OF THE PENIS.

416 BROAD STREET, PROVIDENCE, R. I., *January 28, 1895.*

To the Editor of the New York Medical Journal:

SIR: In your issue of December 8, 1894, you mention three cases of strangulation of the penis. I should like to place another case on record.

J. F. entered the Rhode Island Hospital on February 23, 1893, during the service of Dr. G. L. Collins, with gangrene of, apparently, the whole penis, and giving the following history: Six weeks before his entrance he had contracted gonorrhœa, and, being much annoyed by the flow of pus, he had tied a string around his penis, thus stopping the flow of pus and incidentally the circulation of the blood.

The gangrenous portion soon separated, and the slough consisted of the whole of the skin of the penis and a small portion of the glans. He refused to be moved from the contagious ward into the regular surgical wards, and so left the hospital, refusing skin-grafting, and all trace of him was lost.

I might also mention the fact that at the same time he was under treatment we had in the hospital another unfortunate who had been the cause of his gonorrhœa, who was undergoing treatment for burns received at a fire in a low resort of the city, and who was also being treated for delirium tremens.

Dr. Higgins, of this city, tells me he saw a case some time ago where superficial gangrene of the penis resulted from the constriction of a young man's penis caused by a finger ring his mistress had placed upon it. Jay Perkins, M. D.

A JOURNAL OF DIGESTIVE DISEASES.

Baltimore, *February 12, 1895.*

To the Editor of the New York Medical Journal:

Sir: The rise of a specialty in medicine is marked by the appearance of journals especially devoted to it. We are glad to inform you that the new specialty of diseases of the digestive organs is about to have its own publication, the *Archiv für Verdauungskrankheiten*, which will appear in April. It will be published in Berlin, Germany, by S. Karger. The editor is Dr. I. Boas, of Berlin, the well-known author of a work on *Diseases of the Stomach.* He will be assisted by specialists in Germany and other countries. The *Archiv* will contain original articles, besides reviews and abstracts of recent literature, and will embrace diseases of the stomach, intestine, liver, pancreas, and peritonæum, constitutional diseases, and dietetics. Those interested may communicate with the editor or the publisher. Julius Friedenwald, M. D.

Proceedings of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Eighty-ninth Annual Meeting, held in Albany, on Tuesday, Wednesday, and Thursday, February 5, 6, and 7, 1895.

The President, Dr. George Henry Fox, of New York, in the Chair.

A Few Practical Points in the Diagnosis and Treatment of Pelvic Hæmatocele.—Dr. W. E. Colegrove, of Horseheads, read a paper on this subject. The ætiology of the condition was first referred to, and disease or injury of the pelvic vessels was given as the efficient cause. The condition might be either intraperitoneal or subperitoneal, and the quantity of blood effused varied from a small quantity to one which would be immediately dangerous to life or even fatal. It was safe to say that such an effusion of blood in any considerable quantity was always dangerous. A case was then narrated which had been erroneously diagnosticated as one of acute retroflexion of the uterus, but which had proved, on closer examination, to be a hæmatoma that had become hardened after the absorption of the serum, simulating a uterine fibroid, and in which also decomposition with symptoms of sepsis had already taken place. The tumor had been treated by vaginal incision, irrigation, and drainage, and the case had resulted in recovery. It was remarked in conclusion, that in supposed cases of retroflexion of the uterus pressure by means of vaginal tampons should not be used until it was quite clear that retroflexion was actually present.

The Use of Chlorine in the Treatment of Typhoid Fever was the title of a paper read by Dr. R. W. Wilcox, of New York. Chlorine had been used as a disinfectant from the time of Haller. It was not so irritating to the alimentary canal as was usually supposed. It was absorbed by all the tissues of the body when inhaled or taken in solution by the mouth, and produced its characteristic staining. If given in small doses in properly diluted solution, it would increase the secretions and facilitate digestion. It was a stimulant to the liver and kidneys, and combined most readily with oxygen. It helped dispose of the toxines which were present in typhoid fever, was a stimulant to the heart, and was a rational means for the disinfection of the ulcerative lesions which obtained with typhoid fever. It could be given in doses of from one to four fluidrachms in a very dilute solution prepared by the combination of potassium chlorate with hydrochloric acid, or by means of the official solution of chlorine. It was worthy of a trial in cases in which other medication had been ineffective, and its use could be continued until complete disinfection, as shown by the discharges, had been accomplished.

The Care of the Ears during the Exanthemata was the title of a paper by Dr. W. C. Phillips, of New York.

Many cases of aural disease developed in connection with scarlet fever and measles, and in most of them recovery resulted. There was inflammation of the entire mucosa of the auditory apparatus, involving also that of the Eustachian tubes. The dorsal decubitus which was usually assumed by the patient favored the accumulation of the morbid secretions, and the latter must be removed as thoroughly as possible. The child's nose should be blown frequently to assist in dislodging the secretions, and applications should be made of boric acid, glycerin, peroxide of hydrogen, etc. The great object should be the prevention of extension of the inflammation to the structures of the middle ear.

Dr. J. E. H. Nichols, of New York, suggested that the diseased surface should be anæsthetized with cocaine before treatment was instituted, to enable one to treat the condition with greater thoroughness. Children were often refractory to such manipulations. The blowing of the nose which had been suggested should not be too violent, and only one side should be blown at a time. This precaution was often a very necessary one.

Tubular Cork Splints for Deformities of the Nasal Sæptum was the title of a paper by Dr. T. P. Berens, of New York. The methods of operation upon the nasal sæptum which had been so much in vogue were, he said, in very many cases not productive of good results. The method now proposed was simple, and ordinary bottle corks could be prepared by the physician at a moment's notice. They should be shaped to fit the nasal cavity with accuracy, and then could be covered with collodion to prevent irritation. If a deformed sæptum was to be treated, the nasal bones should first be carefully fractured and the fragments placed in proper apposition to each other. The splints were then to be inserted into one or both cavities, according to the sensitiveness of the parts. They might be kept *in situ* for a week, or they could be changed in twenty-four hours if they caused pain. It was better to leave them in position one or two weeks if they could be worn without too much discomfort.

The Dry Treatment of Otitis Media Suppurativa was the title of a paper by Dr. J. E. H. Nichols, of New York. He said the treatment did not consist merely in the insufflation of boric acid, which resulted mainly in shutting in the secretions and the formation of a hard plug; indeed, such a treatment was not curative and would usually cause desquamation of the skin of the external ear. He had arranged an ear kit for the treatment of such cases, a suitable syringe and a bottle of peroxide-of-hydrogen solution being essentials. The dry treatment advocated consisted in removing the secretions as soon as they were formed. The ears should be inspected at least twice a week until the bad symptoms were relieved. If the perforation in the tympanum was small it should be enlarged and free cleansing and drainage established. The curette should be used to remove any dead or decomposed tissue which might be present, and the use of a caustic of moderate strength should follow that of the curette, but only a minute quantity should be used. As astringent applications, alumnol and absolute alcohol were useful. Europhene and iodoform were considered objectionable. The nose and the nasopharynx also should receive attention, as well as the ears. In nearly two hundred cases which had been seen by the speaker great improvement, as to the discharge from the ears, had been produced, though the results as to the hearing had not been so favorable.

The Care of the Nose and Throat during the Course of the Exanthemata was next considered by Dr. C. C. Rice, of New York. Medicaments, he said, could readily be carried to the upper air-passages by atomization without swabbing out the nose and throat. The object of treatment was to remove superfluous secretion and render alkaline that which formed anew, to remove bacteria, and finally to apply a protective to prevent too rapid evaporation. Habitual mouth-breathers among children were greater sufferers than others from the exanthemata. They should be treated for this fault before they were attacked by the exanthemata. In treating the anterior nasal passages for the coryza of measles as little force as possible should be used. Seiler's nasal tablets with cocaine might be used with an atomizer every two hours, or the application could be made with a medicine-dropper or a spoon. The strong preparations, including peroxide of hydrogen and carbolic acid, were not indicated for this condition. Such preparations as were used might be combined with oils, with antiseptics, or with bland and unirritating powders, or even with chloroform and cocaine. The best atomizer at present in the market was believed to be that which was made by McKesson & Robbins. If an exudate formed in the throat, a strong preparation, such as pyrozone mitigated with cocaine, should be used to remove it, and a protective of a suitable oily substance should be applied afterward. If hæmorrhages of the nose occurred in the cases which were under consideration, peroxide of hydrogen would be found a useful astringent.

The Surgical Indications in Neuralgia.—Dr. J. G. Clark, of Olean, read a paper in which he treated mainly of trigeminal neuralgia, in which the surgical indications for treatment were becoming more and more noteworthy. The medical treatment with morphine and other narcotics was not curative and often resulted in the formation of bad habits. In recent years various operations had been performed upon the fifth nerve, even including intracranial neurectomy. After such treatment there was immediate relief from pain, and there were no very unpleasant results to the tissues to which the nerves were distributed. Removal of the teeth when the dental portion of the nerve was involved seldom gave relief. A case was narrated in which the nerve had been severed at the foramen of exit and the Paquelin cautery point applied to the portion within the foramen. The result had been satisfactory. It was suggested that intercostal neuralgia might be cured by section of an intercostal nerve, also that the neuritis in amputation stumps could often be better treated by dissection and removal of the offending nerve than by reamputation of the limb.

Extraordinary Intubations was the subject of a paper by Dr. William Hailes, Jr., of Albany. The cases narrated were two in number. The first intubation had been done during the second day of a case of membranous croup, when the patient was almost *in extremis*. Improvement had occurred on the following day, and on the next the left leg had become gangrenous on account of embolism of the popliteal artery that had eventually required amputation of the member. The embolus had not been of septic origin, but originally a white fibrinous heart clot of auricular origin. The stenosis in the trachea having been relieved and the child's nutrition improved by food, the clot had been dislodged and forced along the circulation until it had finally become fixed in the popliteal artery.

The second case was one of typhoid ulcer of the larynx. There had been hæmorrhage from the bowels during the second and third weeks of the disease, and great consequent emaciation; then had come symptoms of stenosis of the larynx with urgent dyspnœa. Intubation had been tried three times unsuccessfully, and as a last resort tracheotomy had been performed rapidly and recovery had resulted, though the larynx appeared seriously crippled and it had thus far been necessary to leave the tracheal wound open.

(*To be continued.*)

THE NEW YORK NEUROLOGICAL SOCIETY.

Meeting of Tuesday, December 4, 1894.

The President, Dr. Edward D. Fisher, in the Chair.

Tumors of the Brain.—Dr. Charles E. Nammack gave the history of a case of brain tumor, and exhibited a post-mortem specimen showing the location of the growth, which was a spindle-celled sarcoma in the left frontal lobe. The full history of the case had been published in the *Medical Record* for May 12, 1894. He also reported another case (see page 208) and exhibited a specimen in connection therewith.

Two Cases of Cerebral Syphiloma were presented by Dr. Nammack. The first patient was a man, aged thirty-four years, a cloth-examiner. He had contracted a chancre in October, 1889; six weeks later he had suddenly become unconscious and had no recollection of what had occurred during the succeeding forty days. Following this there had been hemiplegia of the right side, which had confined him to bed for three months. The patient had been put on specific treatment as soon as the initial lesion was discovered, and this had been continued vigorously until the fall of 1893. About six weeks after the treatment had been left off, the patient had been attacked with severe occipital headaches and bitemporal hemianopsia, with ataxia and exaggeration of the knee-jerks. Under specific treatment, these symptoms had now almost entirely disappeared. Dr. Nammack said the lesion in this case had probably been a gumma situated in the substance of the optic chiasm.

The second patient presented was a man, aged forty-four years, who had complained of dizziness, bilateral occipital headache, tinnitus, absolute deafness of the left ear, and diplopia. He also had had the characteristic cerebellar gait. The history of syphilis in this case had been rather obscure, but under specific treatment the man's symptoms had almost entirely disappeared. The diagnosis in this case had been that of gumma in the cerebellar region.

Muscular Dystrophy.—Dr. B. Sachs showed a young woman with all the characteristic symptoms of muscular dystrophy of the facio-scapulo-humeral type. On attempting to show the teeth, she was able to retract the lower lip slightly, the upper one not at all. There was also a loss of power in the eyelids, and the conditions in the region of the shoulder girdle were very characteristic. There was distinct hypertrophy of the infraspinatus and supraspinatus, with atrophy or partial atrophy of the serratus, the pectorals, and the rhomboids. The patient was unable to raise her arm beyond a horizontal attitude. Dr. Sachs said that last July he had excised quite a large piece of the infraspinatus muscle, and in doing so a considerable part of the nerve as it entered the muscle had accidentally been removed. A histological examination of the specimen had shown a great preponderance of fatty tissue; some of the muscular fibers were hypertrophied, but most of them were atrophied; there was also distinct evidence of a marked degeneration of the nerve. In view of the discussion that was now being carried on regarding muscular dystrophies, the fact that the nerve in this specimen had been found to be affected was of particular interest, although, of course, no decided inferences could be drawn from a single case. There had recently been a positive improvement in the condition of this patient. In the lower extremities there was slight atrophy of the muscles.

Rapid Gliosis of the Spinal Cord.—Dr. L. E. Holt and Dr. C. A. Herter reported the case of a male child, aged one year, who had been admitted into the Babies' Hospital on February 21, 1894. His family history was good. His parents had two other children, who were healthy. Three months previous to his admission the child had been noticed to be weak in the right arm and hand, and at about the same time his head had begun to droop forward. The motor paralysis in the right arm had gradually increased, and finally there had been complete loss of power in both arms and in the shoulder muscles. The muscles in these regions had become decidedly atrophied and flabby in consistence. The muscles of the neck were exceedingly rigid, and the head was carried stiffly, slightly in advance of the normal position, with the face looking directly forward. There had seemed to be some loss of power in the legs. The knee jerks were exaggerated, especially on the right side; ankle clonus was obtainable on each side. There was considerable dyspnœa and coarse râles could be heard over the entire chest; there were no signs of consolidation. The child's temperature, on admission, was 102°; it showed irregular daily variations, ranging from 100° to 105° and even higher. There was occasional vomiting. The pupils were equal; they were normal in size and responded to light. There was partial analgesia of the body below the arms. The respirations ranged from 32 to 52 a minute. On March 16th slight strabismus was noticed, and the head was rolled continually from side to side. At times there was marked cyanosis. The temperature rose to 106° and the child died at 6 P. M.

At the autopsy, a grayish projecting mass was found, which occupied almost the entire right side of the medulla and a large part of the left side. The medulla was considerably enlarged from before backward and from side to side. There was also considerable enlargement of the cord, as far down as the eighth cervical segment, and from this point to the sixth dorsal there was some enlargement; below this the cord appeared to be normal. A histological examination of sections of the growth from different parts of the cord revealed a typical gliomatous structure which involved, to a greater or lesser extent, the medulla and almost the entire cord. Dr. Herter said the appearance of the preparations examined rendered it probable that the new formation of glia-cells had been derived from the proliferation of the ependymal and peri-ependymal cells. Although the new growth had involved almost the entire extent of the spinal cord, it was only to the well-developed growth in the upper half of the cord that the symptoms presented by the patient had been attributable. The high temperature could hardly be accounted for by the patient's pulmonary condition, and had probably been due to the rapid destruction of nerve elements in the spinal cord. In connection with the paper, Dr. Herter exhibited a number of photographs showing the microscopical appearance of the growth at various levels of the cord.

Tumor of the Lumbar Region of the Spinal Cord.—Dr. Ira Van Gieson and the President reported the case of a man, aged sixty-one years, a German carpenter. He had been admitted into a hospital on April 18, 1894, when notes of the case had been taken by Dr. A. F. Witmer, the house physician. His family history was negative. He had had syphilis at the age of twenty-five. There was no history of alcoholism. For about six months previous to his admission he had suffered from pronounced dizziness on standing erect. His memory was good. There was diplopia of three years' duration. His hearing was good, his speech was normal, and there were no gastric symptoms. During the preceding eight months he had suffered from retention of urine and from frequent and severe attacks of diarrhœa. There was entire loss of sexual desire. There was no weakness or ataxia of the upper extremities, but he complained of progressive weakness of the lower extremities, which had begun about a year before. He had never had any twitching, or convulsions, or hyperæsthesia, but he complained of a feeling of numbness from the waist down. His mental condition was unimpaired. The pupils responded both to light and to accommodation; the visual field was normal. There was no paralysis of any of the cranial nerves. Co-ordination in the lower extremities was impaired; the patient was unable to stand erect, and fell to the floor unless he had some support. There was no atrophy nor hypertrophy of the muscles. The gait was decidedly ataxic, and the patient could not walk at all without assistance. There had been a gradual increase of sensibility to touch and pain in both feet, more pronounced in the right one. The knee-jerk on the right side was entirely abolished; on the left side it was normal. On May 22d the patient had been found to have a large bedsore over the sacrum. From this time on he had rapidly become weaker, and had died on June 3d.

Dr. Van Gieson, who had made the autopsy, reported the result of the histological examination. The lesion had proved to be an extramedullary tumor of the spinal cord, cylindrical in appearance, extending from a little above the second lumbar segment downward into the cauda equina, a distance of nearly three inches. It measured three centimetres at its broadest part. It rested on the ventral surface of the cord, and at about the level of the fourth lumbar segment the pressure of it had begun to produce some distortion of the cord; at the fifth lumbar segment this distortion was very striking, both the anterior and posterior horns being pressed into a thin mass. In the sacral region the pressure-effects were less marked. The extreme tip of the cord was found to be curled upward on itself as far as the fifth sacral segment. Whether this retroflexion of the cord had been produced by the growth, which perhaps had developed from below upward, Dr. Van Gieson did not know. The growth had proved to be a glio-sarcoma. In connection with the paper, Dr. Van Gieson exhibited a number of charts and drawings of microscopical specimens.

The President stated that the patient had been under observation for so short a time that a diagnosis of tumor of the cord had not been made. The history of syphilis, the diplopia, and the ataxic gait had led the physician in charge to make a diagnosis of locomotor ataxia. Some of the characteristic symptoms of extramedullary tumor, such as radiating pain from compression of the nerve-roots, as well as pain in the back, had been absent. It was to be regretted that the correct diagnosis had not suggested itself, as it might have led to a more careful distinguishing of the symptoms, and perhaps even to operative interference.

Dr. Sachs said it was unfortunate that the history was so unsatisfactory, inasmuch as the growth had been entirely extramedullary. In tumors of the cord, it was always an important point to determine whether the growths were intramedullary or extramedullary, because the latter were unquestionably much more appropriate for operative interference. He inquired of Dr. Van Gieson whether an operation would probably have been of any avail in this case.

Dr. Van Gieson thought not. The growth was extremely vascular, and in certain parts of its course it had been wrapped about the cord.

Dr. M. Allen Starr stated that one of the most valuable symptoms in the diagnosis of extramedullary tumors of the spinal cord was pain. In two such cases that he had seen this symptom had been very marked, and it had led to a correct localization of the growth. In both instances the pain had been referred to a limited area covering the field of distribution of the appropriate sensory nerves. In the first case, in which an operation had been performed by Dr. McCosh, a sarcomatous growth had been found in the dorsal region. The patient had gone into a state of collapse and had died ten days later of exhaustion. The second patient had been a young woman who had been operated on by Dr. McBurney, who had found the cord compressed by an encapsulated tubercular deposit. The removal of this had resulted within three days in complete relief from the paraplegia from which she had suffered; she had also been thus enabled to perceive sensations in an area that had previously been anæsthetic, and had regained some control over her bladder and rectum. This improvement had continued for four weeks. She had then had an attack of acute gastritis from eating some candy, and on the following day her temperature had been very high and the symptoms of paraplegia had again developed. They had gradually increased during the next ten days, and it had then been decided to reopen the wound, and the tissues about the cord in that region had been found to be so completely infiltrated with tubercular deposits that nothing could be done.

Dr. Sachs called attention to the fact that in this case the growth had covered the ventral surface of the cord; pain was only present when the growth was on the dorsal aspect or encroached on the posterior nerve-roots. In the diagnosis of these cases we should not rely so much on the presence of pain as on root symptoms.

The President said that in the case reported the man had complained of little or no pain. There had been no shooting pains characteristic of involvement of any of the nerve-roots. There had been a gradual loss of power in the lower extremities, which had become complete ten or twelve days before death, showing a compression myelitis.

Dr. Herter said the diagnosis in these cases was often very difficult. Still, he did not see how the symptoms had pointed to locomotor ataxia; the rapid progress of the disease, the lack of sensory symptoms, the motor symptoms, their unilateral character—these certainly had not pointed to tabes. The speaker agreed with Dr. Starr that pain was an early and very constant symptom in cases of tumor of the cord; it was perhaps the most important symptom of all. Where the tumor involved the cord substance, one was apt to find a rather characteristic symptom—namely, marked contracture, either on the side affected or on both sides.

PHILADELPHIA ACADEMY OF SURGERY.

Meeting of November 5, 1894.

The President, Dr. William Hunt, in the Chair.

Ligature of the Spermatic Cord in the Treatment of Hypertrophy of the Prostate Gland.—This was the title of a paper by Dr. J. Ewing Mears, who stated that in the male subject the function of the generative apparatus involved the secretion of semen and, under certain conditions, its ejaculation. The former was accomplished in the testes and the latter by the vasa deferentia, the vesiculæ seminales, the prostate, the urethra, and the penis.

In order to explain certain forms of hypertrophic changes occurring in the prostate gland, he thought it necessary to consider the anatomical structure of the ejaculatory apparatus. Portions of this were tubal in character, forming ducts or canals, such as the vasa deferentia and the urethra; the vesiculæ seminales were composite organs, not mere receptacles for the accumulation of semen, but possessing secretory power; the prostate was more of a muscular than a glandular organ. As determined by the investigations of Kölliker, the glandular substance did not constitute more than one third or a half of the whole mass; the vasa deferentia, according to the same author, were endowed with a colossal muscular apparatus and were stated to be chiefly operative in ejaculation. The seminal vesicles and ejaculatory ducts exhibited the same muscular structure as the vasa deferentia. All parts of the ejaculatory apparatus possessed what was essential to their functions—a redundance of muscular fibers. He referred to these well-known anatomical facts in order that they might be considered in connection with certain forms of prostatic hypertrophy.

Enlargement of the prostate might be due to inflammation, acute or chronic, sometimes ending in abscess, cystic degeneration, which was rare, tuberculosis, myomatous growths, carcinoma, or simple hypertrophy. Cystic, tubercular, and carcinomatous affections of the prostate might be eliminated from consideration as being without the circle of conditions possible to be relieved or in any way affected by the plan of treatment to be discussed. Clinical observations had, he thought, satisfactorily determined that the remaining affections had intimate relations with the functional activity of the secretive organs of the generative apparatus, and were therefore affected by any conditions which controlled this.

An organ in a state of inflammation required, in order that it might return to a normal condition, a cessation, so far as it was possible, of its function; if this was not accomplished the inflammatory action progressed, with the resultant effects of plastic deposit and increase in size, the course of the inflammatory action terminating in this stage, or possibly continuing to the suppurative stage.

Clinical observation recorded the fact that in married women, or in single women in whom the functional activity of the generative organs was maintained, myomatous growths of the uterus developed more rapidly and attained a larger size than in the unmarried woman or in the single woman who did not indulge in sexual congress.

Clinical investigation had also determined the fact that simple supernutrition was the result in many instances of overstimulation; of inordinate functional activity. In this manner it was possible to account for simple hypertrophy of the prostate, that condition which more than any other was the occasion of the serious secondary conditions manifested in the urinary apparatus. With this condition the surgeon had to deal oftener than with any other form of hypertrophy occurring in the gland. Examination of specimens of prostate glands affected with simple hypertrophy showed, according to Billroth, that there was no increase in the glandular elements, but simply expansion of the acini and epithelial hyperplasia. The enlargements of the gland frequently observed depended essentially on diffuse myoma.

The question as to the occurrence of hypertrophic changes in the prostate gland at a period of life when on all other glands and tissues of the body the law of atrophy assumed sway had often been asked, but never satisfactorily answered. Might the answer not be found in its anatomical structure and in its anatomical and physiological relations? In structure and function it was composite. The arrangement of its muscular fibers would seem to indicate that their duty was more than that which related to the function of the glandular portion of the organ—more than the simple expulsion of the secretion of the gland into the general ejaculatory canal. Placed near the culmination of the forces concerned in the expulsion of the spermatic fluid, its function would appear to be that of a re-enforcing agent—of giving increased propulsive movement to the column of fluid which, it might be, came only from the seminal vesicles or from both vasa deferentia and seminal vesicles. Was the hypertrophy, therefore, conservative in character, occurring at a period of life when nerve power declined and the other muscular portions of the ejaculatory apparatus yielded to the law of atrophy?

Dr. Mears had observed that the form of hypertrophy under discussion occurred in those who had overindulged the sexual appetite—who had kept the generative organs in prolonged states of excitement with, in many instances, incomplete acts, or without acts of coition, these conditions resulting in overstimulation of the gland.

The plan of treatment suggested, he said, would appear to be both philosophical and physiological, as an effort had been made to show that the pathological condition present was directly associated with the functional activity of the generative apparatus. Obliterate this, and all organs associated in the performance of this function would be affected. Without the organs for the secretion of semen the ejaculatory apparatus had no function.

The eminent Rokitansky had long since observed that the prostate was generally found to be small when the organs of generation were in an imperfect condition, and a diminution of the prostate with relaxation of the glandular tissue had been observed as accompanying atrophy of the testes.

To obliterate the function of the generative apparatus was therefore a rational method of treatment in prostatic hypertrophy of the forms above mentioned. How could this be accomplished? Dr. J. William White, in an elaborate paper on The Surgery of the Hypertrophied Prostate, read before the meeting of the American Surgical Association in 1893, had referred to the operation of castration as a therapeutic measure in hypertrophy of the prostate, and had reported a number of experiments which had been conducted on dogs, showing that removal of the testes in these animals had been followed by prostatic atrophy. Without doubt castration would prove effectual in the production of atrophy, and reports of cases had appeared in recent current surgical literature in which very positive relief had been afforded by the operation. It was an operation, however, to which patients would naturally refuse to submit, unless in the very last stages of disease of the bladder resulting from prostatic obstruction.

In the discussion which had followed the reading of Dr. White's paper Dr. Mears had suggested ligature of the vas deferens as an operation which would probably be as efficacious as castration, and one which he believed would be more readily accepted by patients. He had seen the report of one case in which this operation had been performed since that date with a successful result.

Within the last year he had taken occasion to examine patients on whom he had performed subcutaneous ligature of the vessels of the cord for varicocele, and he had observed more or less atrophy of the testes in these cases. In all the vas deferens had not been excluded from the ligature. One patient, who was eighteen years old at the time of the operation, had reported that, subsequent to the operation, nocturnal emissions, from which he had suffered greatly, had disappeared, showing, the author thought, the relief afforded to prostatic irritation by the operation.

Inclusion of the vas deferens in the ligature applied to the vessels of the spermatic cord would, he believed, produce atrophy of the testes, and the operation was not increased in gravity. It might be advisable to apply the ligatures at intervals of time.

The gradual disappearance of the sexual function would not disturb the mental condition of the patient, as many realized it from other causes, and the consolation he would derive from the presence of testicles, with relief from suffering, would, he believed, fully compensate. In all cases the patient should be informed of the character of the operation, and what was intended to be accomplished by it. With him should rest the decision. Dr. Mears regarded it as the duty of the surgeon, however, to urge very earnestly the performance of any operation which would be efficacious in terminating the sufferings, sometimes horrible, of patients suffering from the results of prostatic obstruction.

Dr. Charles B. Penrose stated that during the last eighteen months ligature of the uterine arteries had been used to replace oophorectomy for small fibroid tumors of the uterus. The result of ligature of both uterine arteries seemed to show as quick and permanent atrophy of the tumor as followed removal of both ovaries. The subject was, however, still too recent to enable us to come to any definite conclusion. A good many patients, even in the hands of enthusiastic advocates of castration for fibroid tumors, failed to be benefited. Tait, he thought admitted that there were from five to six per cent. of failures.

Dr. Mears, he thought, had said that fibroid tumors were more common in married than in single women. The speaker thought, however, that Dr. Emmet and Dr. Goodell made an opposite statement, and attributed the growth of fibroids to the congestion due to ungratified sexual desire or to uninterrupted menstruation.

Dr. Orville Horwitz had had no practical experience with this operation, but expected to operate in two cases. If the cord was to be completely ligated, he thought it would be wiser to tie it above and below and divide it, as was done for the radical cure of varicocele. It was maintained that the open operation was the safer one, because if more than two thirds of the veins were tied at one time, atrophy of the testicle was apt to occur. He had seen one or two cases where marked atrophy of the testicle had followed subcutaneous ligature of the veins.

Another point to be considered in the ligature of the entire cord was in regard to the blood supply of the testicle. Dr. Mears thought that the attachments of the testicle would be sufficient to nourish it. The speaker was strongly inclined to try this operation, but he should prefer to employ it first on one of the lower animals, to see if gangrene of the testicle would follow.

Dr. Mears said that his paper had been largely suggestive. He thought it would be very desirable if we could obtain an operation as free from danger as ligature or section of the cord, and which would give positive relief in the cases of prostatic hypertrophy alluded to. Extirpation was an operation to which patients would not readily submit. He thought if we could leave the testicles in position a great point would be gained. It was absence of the testicles which disturbed the feelings of the patient. If the sexual function gradually disappeared it would not excite the same mental disturbance.

He was familiar with Dr. Emmet's and Dr. Goodell's views with reference to the occurrence of fibroid tumors in unmarried women. His statement had not related to the cause of fibroid tumors, but to the manner in which they, being present, were affected in unmarried women. In his own practice he had observed cases where the tumors had greatly increased in size in married women, and in unmarried women where there had been reason to believe they had indulged the sexual appetite.

Lithotomy after Partially Successful Closure of Exstrophy of the Bladder; Subsequent Construction of a Perineal Urethra from Scrotal Tissue.—Dr. John B. Roberts read a paper on this subject.

In March, 1893, a child, aged eight years, with exstrophy of the bladder, had been brought to him at the Polyclinic Hospital for treatment. The mother had told him that when three or four years old he had been operated on at the Children's Hospital. It had been evident that some improvement in the condition had been made by this early operation, because the posterior wall of the bladder did not protrude, as was often the case, but formed a rather shallow cup at the base of the rudimentary penis. The flaps had evidently been taken from the surface above the congenital defect and at its two sides, as in Wood's operation, for the cicatrices in these regions had been apparent. The urine had run from the bladder over the penis and scrotum, and had also escaped from linear sinuses along the top and sides of the thickened tissue which had closed the upper portion of the cleft in the bladder.

As a first step in the operation he had endeavored to produce a perineal fistula by thrusting a curved needle from the base of the bladder through the perinæum, behind the scrotum, and conducting a drainage-tube through the opening so made. The tube had been increased in size at various intervals until at the end of two months there had been a canal which would contain a rubber urethral bougie of moderate size.

He had then etherized the patient a second time, and had made a circular denudation around the edge of the open bladder. The rudimentary penis, consisting of the spongy body, the cleft glans, and the cleft prepuce, had been entirely removed. Cylindrical masses on each side of the opening in the bladder, which had appeared to be the representatives of the cavernous bodies, had also been dissected away. A piece of soft-rubber catheter had then been introduced through the perineal opening established by the first operation, and its end allowed to reach the floor of the bladder. The purpose of this procedure had been to secure downward drainage of the urine after the edges of the bladder had been brought together.

Seven deep sutures had next been inserted in such a manner as to bring the denuded edges of the bladder wall into apposition in a vertical direction. The wound had then been sealed with iodoform and collodion.

The perineal tube, however, had soon become blocked with mucus and pus, which had been continually flowing from the irritated mucous membrane of the bladder, and had not been satisfactory as a drain. The speaker had finally passed a drainage-tube from one of the upper sinuses directly through the bladder and out of the perineal opening, in order to prevent the sutures in the middle line from yielding. These middle sutures, however, had finally given way, and when the patient passed from observation there was a large opening in the middle of the attempted closure. Some union had, however, been obtained. The perineal opening had shown a marked tendency to close.

He had not seen the patient again until October, 1894, sixteen months later. At this time the perineal opening had entirely closed and its scar was inconspicuous, but the exstrophy of the bladder had been completely covered by the new anterior wall. At about the middle of this wall, which had been constructed in the manner described, was a small opening of sufficient size to admit the end of a large probe. At the upper and right-hand side of the portion of the wall which had been constructed in infancy was a linear sinus about an inch in length. This was situated at one of the points which, when he had first seen the child, had allowed the urine to escape. There had been a little oozing of urine from the small central fistula, but the major portion had escaped from the sinus at the upper right-hand border.

The mother said that the patient had suffered severe pain, which had been evident by his crying at the least touch of the skin in the neighborhood of the central sinus. The insertion of a probe had proved that the new bladder contained calculi. The child's general condition had been poor, and it had been evident that he had suffered greatly. The offensive character of the urine and the difficulty of keeping him free from its odor had caused the speaker to give him small doses of turpentine, which, as was well known, imparted a peculiarly agreeable odor to the urine. This device had seemed to render the patient less offensive to the others in the ward.

A few days later Dr. Roberts had enlarged the opening in the middle of the bladder wall in front and had found the cavity filled with calculi. They were ten in number and varied from five sixteenths to five eighths of an inch in diameter. Their combined weight when not dried was a hundred and ninety-five grains.

It had seemed to him that the establishment of a perineal urethra lined with skin would afford efficient drainage to the new bladder, and would remain patulous. He therefore had determined to cut a channel between the perinæum and the floor of the bladder, and turn in flaps of skin taken from the scrotum. As a first step he had incised the scrotum in the middle line and had removed both testicles. He had then made a puncture downward from the base of the bladder to this scrotal incision. This had permitted him to utilize the scrotal tissue for lining the new channel. By two horizontal incisions on each side of the opening he had obtained strips of scrotal skin and superficial fascia half an inch wide and an inch and a half long. To the inner end of these, ligatures had been fastened and the threads carried upward through the new urethra. The cutaneous flaps had then been drawn up along the canal into the bladder, and had been sutured on each side of the incision in the middle line of the anterior bladder wall. This manœuvre had lined both sides of the perineal opening with skin from the perinæum to the anterior bladder wall. A drainage-tube had been inserted to keep the channel patulous, and the bladder and tube had been washed out.

No attempt had been made to close the opening in the middle line or that at the upper and right-hand side. He had deemed it better to leave these open for convenience in flushing the foul bladder cavity. It had been his intention to close these at a later period. The edges of the wound in the perinæum left by the plastic operation had been brought together with sutures, and it had healed promptly. Antiseptic solutions had been used for washing out the bladder and tube, and the patient had done well for several days. His temperature had not been high, and the drainage through the perineal tubes had been quite satisfactory, though not always perfect. At the end of three or four days he had begun to lose his appetite and had vomited occasionally. He had died on the fifth day, apparently from exhaustion.

An autopsy had shown disease of the left kidney, which had been riddled with small abscesses. The ureter on this side was double, and showed great enlargement of the caliber and thickening of the walls. The pelvis of the kidney and the double ureter were filled with pus. Just before the two ureters of this kidney reached the bladder they united and opened into the bladder by a single orifice. The right kidney and ureter appeared to be normal.

He believed this method of constructing a perineal urethra and lining it with skin from the scrotum would be found an efficient device in dealing with these unfortunate cases. It was very probable that the child would have lived if he had taken this step originally, instead of making an opening into the perinæum without a cutaneous lining.

Dr. H. R. **Wharton** asked Dr. Roberts if it was not possible that these stones might have had some connection with the growth of hair on the inverted flap. In Wood's operation the inverted flap often contained hairs, and these might continue to grow as the patient increased in age, and become the seat of calcareous depositions from the urine.

Dr. L. W. Steinbach asked Dr. Roberts what his theory was in regard to the formation of these calculi? What was their nucleus? He recalled a case of vaginal hysterectomy where a portion of the posterior wall of the bladder had been removed. Within a week the stitches closing the bladder opening had been covered with deposits of considerable size, and it had not been an easy matter to remove the sutures, incrusted as they had been.

Book Notices.

A Clinical Manual of Diseases of the Eye, including a Sketch of its Anatomy. By D. B. St. John Roosa, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School and Hospital, etc. Illustrated by One Hundred and Seventy-eight Engravings and Two Chromo-lithographic Plates. New York: William Wood & Co., 1894. Pp. xx–3 to 621.

The author says truly that there are already many excellent treatises on the eye in the English tongue, but every ophthalmologist will welcome this book because of the personal coloring of such an indefatigable and clear-headed observer as Dr. Roosa. The first part, on the anatomy of the eye, is by Dr. Davis. It occupies a hundred and sixteen pages and presents this very important basis of ophthalmology, which is too often omitted from works of this class, in as lucid and readable a form as comports with the brevity of his space.

The second part is devoted to the relative frequency of different diseases of the eye, the methods of examination, therapeutics, and surgery. The tables showing the relative frequency of diseases are very interesting, and one is particularly struck with the figures regarding the proportionate increase of refraction cases. In 1870, at the New York Eye and Ear Infirmary, only 2·5 per cent. of eye cases were cases of refraction. In 1892 they had increased in the same institution to 13·8 per cent., and at the Manhattan Eye and Ear Hospital they amounted to 31·3 per cent. Either the percentage of such cases is increasing or we are accustomed to make more thorough examinations than formerly.

The chapters on the examination of the eye do not differ materially from similar portions of other works. A considerable space is devoted to the description of the Javal-Schiötz ophthalmometer. This is naturally to be expected by every one conversant with Dr. Roosa's enthusiastic advocacy of this instrument. In this description exceptions may be taken to a few points. On page 157 he says: "Following the rules above, the long index always indicates the axis of the convex glass to be worn, and the short index on the reflectors the axis of the concave glass that is ordered—*in any case*." (Italics, Dr. Roosa's.) Competent observers occasionally meet with cases in which the axis of the corneal astigmatism as shown by the ophthalmometer and the axis of the total astigmatism as shown by the test-lenses are not the same. In such cases most ophthalmologists prescribe glasses in accordance with the reading of the test-lens. On page 160 he says: "If no astigmatism at all exists, there is no overlapping and no separation on the second turning." Many observers find that when there is no overlapping or separation of the mires the patient will usually be benefited by ·25 D. or ·50 D. against the rule.

"However much special knowledge the practitioner may have of the anatomy and physiology of the eye, and of its local symptoms when diseased, he must have a good knowledge of and experience with the symptoms of constitutional or general disease, or he will fail in attempting to become a competent specialist." If every young graduate could have the truth of these words impressed upon him so that he would know it to be an actual, incontrovertible fact, fewer of them would seek to enter the specialty until they were competently prepared.

We are glad to see Dr. Roosa, on pages 187 and 188, take so strong a position in advocacy of antiseptic precautions of the strictest kind previous to operations. Whether a solution of boric acid or one of bichloride of mercury is used with which to bathe the eye is unimportant so long as absolute surgical cleanliness, the sole object of all antiseptic precautions, is maintained. But we regret to find him, in another part of the book, class among "operators who lay great stress upon antiseptics" some who "will operate upon the eye in aprons or gowns which they have worn while treating contagious cases." Such operators should never be mentioned as laying great stress upon antiseptics, no matter how or how much they talk or write about them.

The chapter on surgical operations is excellent. The space given in some books to operations of mainly historical value is here devoted to practical details. But under the head of plastic operations the omission of Thiersch's method of skin-transplantation is to be regretted, as it is probably the most valuable advance that has been made in this line for many years.

In the description of the diseases of the eye Dr. Roosa has followed the example of Stellwag in giving the brief characteristic description in Italics, a plan which is of valuable assistance to the reader. The frequent references throughout indicate the great extent of the author's research as well as his fairness in quoting the opinions of younger men with whom he has been associated.

The chapters on cataract are good. The author prefers Förster's method for the ripening of cataracts and believes that the iridectomy rather than the trituration is the main factor in producing maturity. The treatment advised after cataract extraction is sensible, as is also the discussion of methods advocated by some prominent men.

In the fourth part, which is devoted to the conditions of the eye requiring the use of glasses, there is an excellent discussion on asthenopia, a careful perusal of which might possibly repay some who write voluminously on the subject. Regarding the rest, it may be said, as, indeed, of most of the book, the same facts may be obtained elsewhere, but in very few books will they be found more lucidly stated or more practically expressed.

The glossary at the end gives the derivation of the technical words used in ophthalmology. Illustrations are not overabundant, but some of them are very good. The book is well got up, uniform with the same author's work on *Diseases of the Ear*. We can heartily recommend it.

Obstetric Surgery. By Egbert H. Grandin, M. D., Obstetric Surgeon to the New York Maternity Hospital, etc., and George W. Jarman, M. D., Obstetric Surgeon to the New York Maternity Hospital, etc. With Eighty-five Illustrations in the Text and Fifteen Photographic Plates. Philadelphia: The F. A. Davis Company, 1894. Pp. viii–207. [Price, $2.50.]

This work is almost unique among American books, both in subject matter and in method of treatment. A strong surgical tendency is apparent in all departments of medicine, and obstetrics is not an exception. There can be no doubt that timely operations in obstetrics may secure results as brilliant as those now obtained in general surgery, provided equal care is exercised in the selection of cases and in the details of operating. The authors are strenuous in their insistance upon asepsis in every detail, not only in obstetric surgery, but in the management of the puerperal state, believing that aseptic obstetrics "robs labor of its terrors and the puerperal state of well-nigh its sole risk."

The book is free from literary references, elaborate statistical data, and profitless discussions of disputed points. The authors, being teachers, have written from a teaching basis. Their style is concise and graphic and they have succeeded admirably in their descriptions of the various operations. Their work can not fail to prove of value to the obstetrical practitioner, as it presents the most recent and approved methods of managing some of the most serious conditions with which he is brought in contact. The following topics are discussed: Obstetric asepsis and antisepsis, dystocia and its determination, artificial abortion and the induction of premature labor, the forceps, version, symphysiotomy, the Cæsarean operation, embryotomy, the surgery of the puerperium, and ectopic gestation.

Atlas of Clinical Medicine. By BYROM BRAMWELL, M. D., F. R. C. P. Edin., F. R. S. Edin.; Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume III, Part 1. Edinburgh: T. & A. Constable, 1894. Pp. 48.

THE present number of this admirable work is devoted to the thyreoid treatment of skin diseases and to acute poliomyelitis. The author was led to the use of thyreoid extract in skin diseases by the extraordinary improvement observed in the nutrition of the skin in myxœdematous patients who were receiving the thyreoid treatment. In them the harsh, rough, dry skin became smooth and soft, so that practically a new skin was formed in some cases. He reports twenty-one cases of the thyreoid treatment of psoriasis. The plates show marvelous improvement in many instances. The author's conclusions are that in a large proportion of cases the thyreoid treatment produces a temporary cure. In some of his patients the improvement was rapid, in others slow. In a few cases no improvement was observed, and in others the result was not permanent. The results obtained in five cases of lupus show that this treatment is capable of producing considerable improvement in that disease.

Poliomyelitis is discussed with the painstaking care characteristic of all this author's work, and the article on it is especially satisfactory.

The plates are fully equal to those of former numbers, and are the most notable feature of the work.

BOOKS, ETC., RECEIVED.

Materia Medica and Therapeutics for Physicians and Students. By John B. Biddle, M. D., Late Professor of Materia Medica and General Therapeutics in the Jefferson Medical College, Philadelphia. Thirteenth Edition, revised, rearranged, and enlarged. With special reference to Therapeutics, Toxicology, the Physiological Action of Medicines, and containing all the Preparations and Remedies described in the United States Pharmacopœia of 1890, to which the work has been made to conform. By Clement Biddle, M. D., Medical Corps, United States Navy. With Numerous Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1895. Pp. 5 to 714. [Price, $4.]

Relations of Diseases of the Eye to General Diseases. By Max Knies, M. D., Professor Extraordinary at the University of Freiburg. Forming a Supplementary Volume to every Manual and Text-book of Practical Medicine and Ophthalmology. Edited by Henry D. Noyes, A. M., M. D., Professor of Ophthalmology and Otology in Bellevue Hospital Medical College, etc. New York: William Wood & Co., 1895. Pp. x–467. [Price, $4.25.]

Dose-book and Manual of Prescription-writing. With a List of the Official Drugs and Preparations, and also many of the Newer Remedies now frequently Used, with their Doses. By E. Q. Thornton, M. D., Ph. G., Demonstrator of Therapeutics, Jefferson Medical College, Philadelphia. Philadelphia: W. B. Saunders, 1895. Pp. 5 to 334. [Price, $1.25.] [*Saunders's New Aid Series.*]

Surgical Nursing. By Bertha M. Voswinkel, Graduate of the Episcopal Hospital, Philadelphia. With One Hundred and Eleven Illustrations. P. Blakiston, Son, & Co., 1895. Pp. xiv–9 to 168. [Price, $1.]

Transactions of the American Orthopædic Association. Eighth Session. Volume VII.

Omphalorrhagia—Umbilical Hæmorrhage. By C. B. Lyman, M. D., Denver. [Reprinted from the *Denver Medical Times.*]

Tumor of the Cerebellum. With Bulimia and Recurrent Apoplectiform Seizures. By J. T. Eskridge, M. D., Denver. [Reprinted from the *Boston Medical and Surgical Journal.*]

Sectarianism in Medicine. Distinctive Features of Existing Medical Sects. By Edwin J. Kuh, M. D., Chicago. [Reprinted from the *Journal of the American Medical Association.*]

Miscellany.

The Treatment of Acute Coryza.—The *Journal des praticiens* for January 26th publishes an article on this subject by M. Marcel Lermoyez, who remarks that there is a very widespread opinion that coryza is always a benign affection that does not call for treatment, and, moreover, that therapeutics has no influence over it, a double mistake of which many persons have been the victims.

Acute coryza, says M. Lermoyez, from a pathological point of view, should not be neglected. It may leave in its place a chronic purulent discharge, or predispose the patient by repeated attacks to hypertrophic rhinitis; and its effects which manifest themselves in other parts are still more to be feared. Occasionally it spreads to the lacrymal sac or to the frontal sinus and causes persistent suppuration. Or, again, it infects the middle ear and leads to the necessity of trephining the mastoid; finally, it is very often the origin of descending bronchopulmonary infection.

Medicine, says the author, is not so powerless against coryza as is supposed. It may moderate the disease at the outset; it may palliate painful symptoms in a marked degree; and very often it may prevent the complications which are provoked by coryza. There are innumerable abortive remedies and certain local means which, if employed when dryness of the mucous membrane is first observed, give excellent results. But, if at the end of twelve hours their effect is not visible, their use must be stopped, as their irritating action, if kept up, will increase the intensity of the coryza. An excellent solution for inhalation, known as Brandt's remedy, is the following: Pure carbolic acid and ammonia water, each, 75 grains; alcohol, 150 grains; distilled water, 225 grains. Every hour ten drops of this solution should be poured on blotting paper and the vapors inhaled by the nose for several seconds.

Among the abortive powders the following, which should be very finely pulverized, is preferred by M. Lermoyez: Cocaine hydrochloride, 8 grains; menthol, 4 grains; salol, 75 grains; boric acid, 225 grains. A pinch of this is to be snuffed up every hour; it provokes an abundant mucous discharge and affords great relief.

Among the internal abortive remedies there is only one, says M. Lermoyez, that is comparatively reliable, and that is the mixture, in equal parts, of tincture of belladonna and tincture of aconite root, of which thirty drops are to be taken in divided doses. Energetic sweating, also, induced by a vapor bath has occasionally given beneficial results. These abortive means are sufficient in ordinary cases. In certain subjects, however, coryza brings, almost inevitably, with each attack, serious otic or bronchitic symptoms, and more energetic means are required. The patient should remain in bed, and revulsion should be practiced on the legs; abundant perspiration should be brought on by means of hot alcoholic drinks, by a potion of ammonium acetate, or by Dover's powder.

If the coryza itself can not be moderated, the most painful symptoms, which are nasal obstruction and headache, may be ameliorated by the palliative treatment. For this nothing is so good as the use of a Richardson spray with a boiled and tepid one-per-cent. solution of cocaine hydrochloride; this brings real relief, freeing the nose and at the same time suppressing the pain in the head. Spraying every two or three hours is sufficient. The cocaine may also be incorporated in powders that are slightly antiseptic but not irritating. The following formula is given: Cocaine hydrochloride, 8 grains; menthol, 4 grains; bismuth salicylate and sugar of milk, each, 75 grains. If there is reason to fear cocaine poisoning, 300 grains of pure olive oil and 30 grains of menthol may be administered by the spray and not by painting, which may produce an erosion, especially if the patient attempts to do it himself.

In order to quiet the neuralgia of the trigeminal nerve which often accompanies coryza, says M. Lermoyez, as well as to combat the general infection which manifests itself in chills and lumbago, a capsule containing four grains of quinine hydrochloride and eight grains of antipyrine is to be taken at each meal. To prevent erythema of the orifice of the nostril, the entrance of the nose and the upper lip should be rubbed with vaseline with which boric acid has been incorporated. Finally, several hygienic prescriptions are indicated. If there are no general symptoms, the patient may go out; if there is fever, he should remain in his room. He must avoid sneezing as much as possible, and refrain from blowing his nose too energetically, as there is danger of projecting septic mucosities into the middle ear. Irrigation of the nose at the acute period of coryza should be absolutely interdicted, as it results in a constant irritation of the mucous membrane and increases the tumefaction; furthermore, it constitutes a real danger for the ear. On the other hand, it finds its indication afterward when a muco-purulent secretion follows coryza, which tends to become chronic. Then the treatment should be the same as that employed in chronic purulent rhinitis.

The prophylactic treatment, says M. Lermoyez, has a great importance for certain persons in whom coryza sets in on the least exposure to cold. These persons should become accustomed to the inclemency of the weather; they should exercise in the open air; and cold douches and salt-water baths should be taken; at the same time underclothing and stockings of wool, also shoes with heavy soles, should be worn. The chronic lesions of the nose, which are the starting point of acute attacks of rhinitis, should be treated. These lesions are, ordinarily, adenoid growths in infancy and hypertrophic rhinitis in adults. It is not rare to find that among the latter ablation of the hypertrophied turbinals will cause the cessation of repeated attacks of coryza.

Acute coryza in the newborn, says the author, is a very serious affection. It disturbs the sleep and prevents the child from nursing, and the patient wastes away rapidly. In these cases the nasal obstruction should be removed at once by applying several drops of a two-per-cent. oily solution of menthol to the nasal fossa, which detaches the crusts at the opening of the nostrils and provokes momentary retraction of the turbinals. The mentholated oil, which is entirely harmless, is preferable to cocaine solutions, which, at that age, cause very serious toxic symptoms and should, for this reason, be proscribed.

Before the child nurses, the secretions which obstruct the nose should be removed by means of a dry douche given with a Politzer's bag. One moderate insufflation into each nostril is sufficient. This very simple procedure is preferable to nasal irrigation, which should be reserved for cases of purulent rhinitis. With regard to intubation of the nose, which consists in introducing into the nasal fossæ rubber tubes to establish an air-passage, this is a dangerous method, says the author, which wounds the mucous membrane and gives rise to synechia. If the child, in spite of this treatment, can not breathe sufficiently through the nose to admit of its nursing, it must be fed with a spoon. The best prophylactic treatment for coryza in infants is not to allow them to go out too soon after birth, especially in damp weather; also, in bathing them, soapy water must not be allowed to penetrate the nose.

Brachial Monoplegia due to Lightning-stroke.—The *Lyon médical* for January 6th publishes an article on this subject in which the author, M. J. Collet, relates the following case of a man who had been struck by lightning: The entire left side was paralyzed and the patient had lost the power of speech, although he stated that he had not lost consciousness. After remaining in this condition for a few minutes he had gradually regained the power to speak and to walk, but the left arm remained paralyzed. There was no pain in either the head or the left arm, and there was no wound of either. When the patient entered the hospital he showed a very marked paresis of the left arm, which involved all the muscles equally. He could not lift the arm, and flexion of the forearm on the arm was almost as much beyond his power. The patient was incapable of resisting, without an effort, the least passive movement in a contrary direction, and the fingers were locked in the palm of the hand.

There was no appreciable atrophy of the muscular masses, which were very sharply defined, and there were no fibrillary tremors. The movements of the prominence of the shoulder were perfectly preserved; the movements of the right arm also were normal; the legs were perfectly strong, and the patellar reflex was slightly exaggerated on each side. The tactile sensibility showed no alteration, but the sensibility to the prick of a pin was manifestly diminished on both sides, perhaps a little more on the left side.

Another examination took place two weeks later, and an appreciable difference was found between the two sides in regard to the sensibility to pain, which still remained very dull. The patient's skin was brown and thick, he seemed to feel no pain on being pinched or pricked, and there was no anæmia of the integument. Although a very careful examination was made, not the least evidence of pupillary inequality could be discovered. The sight seemed to be equally good in both eyes, but there was divergent strabismus. There was absolutely no contraction of the visual field.

The pharyngeal reflex was normal; pressure on the testicle did not provoke any abnormal sensation; the sensibility of the cornea was found to be diminished; an examination of the viscera revealed nothing, and the general condition was good.

An investigation of the electrical reaction, practiced a few days later with the interrupted current, showed no appreciable difference between the healthy side and the affected side. With the galvanic current, with the electrodes applied on the forearm, sometimes on the dorsal surface, sometimes on the palmar surface of the left side, with a current of five milliampères there was a very distinct contraction on cathodic closure, and a very feeble contraction on anodic opening, not manifesting itself by a movement of the fingers.

The patient was subjected to daily applications of faradaic electricity on the paralyzed arm, and when he left the hospital there was only a slight paresis, and the sensibility of the cornea was normal.

There was in this case, says the author, no previous history of nervous trouble. The patient had been struck by lightning and completely paralyzed for several minutes, after which there had been hemiplegia for a short time, and this had been followed by brachial monoplegia of the left side, which improved rapidly in fifteen days. Paralysis from such a cause is not absolutely rare, he says, but still there are other points of detail worthy of mention. It may be a question of a simple paralysis of traumatic origin, due to the fall. The patient stated that at the moment when he was starting to come down a ladder he had been thrown to the ground and immediately paralyzed. M. Collet says it may be admitted that the patient's left shoulder struck the ground and that the brachial plexus was stretched and bruised by a forced movement of the collar-bone, below and behind, or by some other mechanism, thus causing an equal paresis of all the muscles of the arm. But this hypothesis is hardly probable, says the author. At first the patient could not indicate the spot on the body which had been struck in the fall. He stated that he had fallen only a short distance and that there had been straw on the ground, and finally that at no time had he felt any pain in the shoulder or in the arm on the paralyzed side. The examination had revealed no traumatism, no contusion, no scratch, and no myosis of the left side, all of which are symptoms that are frequently found in inferior radicular paralysis. The want of difference between the electrical reactions of the two sides, says M. Collet, is not perhaps of very great diagnostic value, as the investigation was not made immediately after the patient's entrance into the hospital. The mode of invasion of the paralysis, however, seems to the author to be conclusive. It is difficult to attribute to the fall the appearance of this complete paralysis, with loss of speech, giving place in a few minutes to a left hemiplegia, which finally extended to the left arm. But the question of all traumatic mechanism put aside, it may be asked if there was not another factor which played its rôle in the production of this paralysis; if hysteria was not a cause.

The idea of the possible rôle of hysteria in paralytic manifestations following fulguration is of comparatively recent date, and it was introduced through the efforts of M. Charcot and his pupils. Among cases of paralysis following a stroke of lightning there are some that have nothing in common with hysteria, but, on the other hand, there have been found some cases which distinctly bore the impress of neuroses. There are some cases in which hysteria shows itself distinctly, and there are others where its presence is very doubtful, notably those where the paralysis lasts for only a few hours or a few days, where it is not accompanied by any hysterical mark. Stricker, Knapp, Leyden, and Ross have cited cases in which they attributed the paralysis of shock from lightning to a direct concussion of the brain or of the medulla oblongata. Observations of this sort are numerous, but from the point of view mentioned they are of very unequal value, and it is all the more difficult to form an opinion from reading of them, as the majority of the cases date from a period when little was known of hysteria in men, and when the presence or absence of hysterical marks are not mentioned except in a cursory manner.

The rôle which hysteria plays in the paralysis due to fulguration remains, then, well established, says the author, but an exact idea of the proportion of cases in which it may take part can not be given.

Without wishing to draw any general conclusions from this particular case, says M. Collet, it seems to him that the paralysis here was due to the simple action of the lightning in a person not predisposed to hysteria, and that it was a case of paralysis due to fulguration and not hysterical monoplegia following fulguration, or a neurosis due to a special traumatism. However, it is not irrational to suppose, he says, that the shock from the lightning may have given rise to a disturbance of the nervous system sufficient to produce dynamic troubles, as it may in other cases arouse a neurosis which, up to that time, had remained dormant.

The Phenolates of Bismuth.—The *Province médicale* for January 19th contains an article on the action of certain phenolated compounds of bismuth — phenol-bismuth, cresol-bismuth, and beta-naphthol-bismuth. M. Jasenski, who has made a study of these compounds at the laboratory at St. Petersburg, gives the following results: 1. Phenol-bismuth contains 27·5 per cent. of bismuth and 22 per cent. of phenol. 2. Metacresol-bismuth contains 75 per cent. of bismuth and 17·5 per cent. of metacresol. 3. Beta-naphthol-bismuth contains 71·6 per cent. of bismuth and 23 per cent. of naphthol. 4. Tribromphenol-bismuth contains 44·8 per cent. of bismuth and 51 per cent. of tribromphenol.

The author has seen these substances become decomposed in the stomach under the influence of the gastric juice, on the one hand, into phenol, cresol, and naphthol, and, on the other hand, into bismuth.

One part of the compound, not having time to become separated in the stomach, passes into the small intestine, where it finds conditions which favor its complete decomposition by the acid of the intestinal contents.

The phenol and cresol, separated from the bismuth, are entirely absorbed in the digestive canal, and are eliminated by the urine in a condition of a conjugate sulpho-acid or combined with glycuronic acid. With regard to the naphthol, one part passes into the urine and the other part into the digestive canal and is expelled with the fæces.

The quantity of hydrochloric acid contained in the gastric juice being greater in dogs than in man, in them a small part of the bismuth becomes transformed into a soluble compound (bismuth chloride), and is absorbed and then eliminated by the urine, while the larger part passes into the fæcal matter in a condition of bismuth sulphide.

In man's urine no bismuth is found, but it is met with in the fæces in the proportion of 96·4 per cent.

Notwithstanding the toxic properties of the phenols, not one of these preparations, when administered to a person to the extent of 75 grains, or to a dog to the extent of 150 grains a day for a period of three weeks, had any noxious effects; probably, says M. Jasenski, because the separation of the phenol from the bismuth took place slowly.

The employment of these compounds in the treatment of acute and chronic diseases of the digestive canal or of the various infectious diseases gives good results, for we have the association of a general carbolized antiseptic and the bismuth as a local antiseptic.

THE NEW YORK MEDICAL JOURNAL, February 23, 1895.

Original Communications

FEMORAL ANEURYSM,

BEGINNING IMMEDIATELY UNDER POUPART'S LIGAMENT TREATED BY DIGITAL COMPRESSION.

RECOVERY.

By HENRY W. SAWTELLE, A. M., M. D.,
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Seaman J. M., aged twenty-eight years; nativity, Newfoundland; was admitted to the United States Marine Hospital, port of Boston, on September 15, 1894. He complained of a swelling in the left groin which was at times painful and pulsated. The patient was under the impression that it was a bubo, and applied for treatment for that disease. Inquiry revealed the fact that the tumor first made its appearance after a hard night's work at the wheel in a heavy sea about sixteen months ago. While at the wheel he was obliged to stand in such a position that he had to brace himself with his left leg, subjecting it to a considerable strain. Since it was first observed the tumor had increased in size.

Examination of the parts revealed a tumor, pulsating very forcibly and perceptibly, so much so that attention was directed to it as soon as the parts were exposed. By palpation it was found to have an expansile pulsation. The tumor was about the size of a hen's egg, of a fusiform shape, and extended up under Poupart's ligament, probably involving the extreme lower end of the external iliac. Pulsation was stopped by pressure on the artery above. The diagnosis of aneurysm of the femoral artery was at once made, and a course of iodides prescribed, with perfect rest in bed.

When questioned as to previous history the patient acknowledged having had syphilis, and gave the following history: During the fall of 1887 he had a chancre, which came on a month and eight days after exposure. The sore healed twenty-three days thereafter while at sea. He commenced to have various symptoms, such as an eruption over the body, neuralgia, and pain in joints, which disappeared readily under treatment, and he resumed his vocation.

I saw this case for the first time September 22d, and at once ordered compression of the artery on the proximal side of the aneurysm, and detailed Dr. Charles R. Robins, interne, to superintend the treatment; and the successful termination of the case was due to his watchful care.

Prior to the adoption of digital compression, attempts were made to control the circulation by means of a tourniquet variously applied, and also a roller bandage used as a compress over the artery just above the tumor, using a relay of convalescent patients to hold it in place. But these attempts proved futile, only tending to make the parts very sore, and a very slight coagulation, if any, was effected. It was decided to desist from further attempts until the tenderness had disappeared, giving in the meantime veratrum viride to control the circulation, and elevating the leg on pillows.

On October 4th, all soreness gone, compression was commenced with the thumb directly over the proximal side of the sac. The thumb of one hand made pressure on the artery as it passed over the brim of the pelvis, and this thumb was strengthened by pressing on it with the thumb and different fingers of the other hand. Six centigrammes of morphine were administered hypodermically before commencing the operation.

At 1.30 P. M., after two hours, no pulsation could be distinguished. Pressure, however, was continued until 6.20 A. M., October 6th, making forty-three hours of pressure, forty-one of which were after pulsation had ceased. Three relays were used, the last of hospital attendants. The patient was catheterized during this time as it became necessary. Nineteen centigrammes and a half of morphine were administered hypodermically. This relieved the pain, caused the patient to sleep, and made the case more manageable. No bad effects were produced further than a slowing of the respiration. After compression was stopped, the thigh was brought up to right angles to the body and held in this position with a bandage. When the effects of the morphine had passed away, drop doses of aconite were given and the iodides were continued. The patient was kept on low diet, and not allowed to exert himself or leave the bed. On October 27th the patient was allowed to walk about for the first time after being three weeks in the recumbent position, and expressed himself as feeling entirely recovered from the troubles incidental to the affection. He was discharged from the hospital October 29, 1894, at which time the parts were examined and the tumor was found to be about half its former size, and the clot appeared to be thoroughly organized. No pulsation of femoral, popliteal, or tibial arteries could be detected, but the collateral circulation was thoroughly established, as evidenced by the warmth and absence of œdema, and the full usefulness of the limb.*

The history of this case teaches that pressure can be more successfully maintained by the thumb, assisted by the other hand, than by the intervention of any appliance, and that pressure should be persisted in until the collateral circulation has been fully established by the enlargement of the arteries entering into it. Hence it was deemed advisable to continue pressure for some considerable time after pulsation in the sac had ceased.

Without entering into a discussion of the varieties, ætiology, symptoms, and pathology of aneurysm, it is nevertheless interesting to note briefly the history of the principal forms of treatment that have prevailed from an early period up to the present, in connection with my case just narrated. This *résumé* has been compiled mainly from American surgical works. The only operation for aneurysm known to the ancients consisted in the laying open of the tumor by incision, and after turning out its contents applying the hot iron to the extremities of the affected artery so as to seal up their mouths. The result was that almost every patient died from hæmorrhage. This practice continued up to the third century, or until the time of Antyllus, who adopted a more rational method. He freely opened the tumor, cleared out its contents, and tied the artery above and below. The sac was then stuffed with charpie to promote suppuration and occlusion, the object being to heal the wound from the bottom. Occasionally the tumor was extirpated. The result of this operation was most disastrous, though it has again received attention of late. Many perished from the effects of inflammation, some of secondary hæmorrhage, and not a few from the shock of amputation made as a last resort. To afford the sufferer a better chance of recovery the removal of the limb was often the only expedient thought of for his relief. The operation of Antyllus was performed by Morel, of Paris, in the seventeenth century in a case of carotid aneurysm; by Keyslere, in 1744, in a case of popliteal aneurysm; and by Sabatier, not long afterward, in a case of femoral aneurysm. Mr. Syme employed it successfully in aneurysm of the common carotid, axillary, and iliac arteries, the first in 1857.

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* Dr. Charles R. Robins writes under date of December 22, 1894, as follows: "I saw to-day the patient who was treated by you for femoral aneurysm about two months ago, and I am happy to be able to report that the clot which was formed under treatment still remains firm and solid, and has decreased somewhat in size. No pulsation in tibial or popliteal arteries, but the leg seems to be perfectly nourished." H. W. S.

In 1710 Anel devised and performed a new operation. He ligated the artery immediately above the tumor, but did not open the sac or tie below. The operation was successful, though the credit of presenting the new principle underlying this operation of ligating the artery on the cardiac side is given to John Hunter, who investigated the subject in 1785, and maintained that the cause of failure of Anel's method was that the artery was tied at a point where it was diseased, and hence the ligature came away too soon and secondary hæmorrhage was generally the result. He accordingly ligated the vessel at a point above the sac where it was healthy, and thus diminished the risk of hæmorrhage. The death-rate after ligature by the Hunterian method, according to Gross, is forty-one per cent. His table of six hundred and ninety-five cases, which included the large vessels, shows that two hundred and eighty-five died. In case of the femoral artery, the table gives two hundred and seventy-eight cases with a hundred and five deaths, a percentage of 37·76.

Brasdor ligated on the distal side in case of aneurysms of the carotid, external iliac, etc.; and Wardrop tied the artery or one of its branches on the distal side of the sac. In the eighty-four cases reported, forty-two patients died. "The majority of the patients who recovered were greatly benefited, and in not a few life was prolonged for several years."

It has been found that aneurysms have recovered spontaneously, as shown at post-mortems, the sac having in some instances pressed upon the artery and thus retarded or cut off the circulation. In other instances the sac has been found filled with a laminated clot where there appeared to be no evidence of pressure whatever.

Valsalva suggested for vessels inaccessible to the ligature or compression, treatment by absolute rest in bed with diet reduced to the minimum amount compatible with life, and an occasional venesection, together with the exhibition of certain drugs to control the circulation and favor coagulation. But this method has not been known to effect any cures.

Professor Tufnell's modification of the above method consists in the use of three means—viz., rest, regimen, and remedial agents. He demonstrated the powerful effect which the recumbent position has upon the force and frequency of the heart's beat. He reduced the diet, but not to the verge of starvation, and thus secured a greater plasticity of the blood as well as diminished the action of the heart. Besides the remedies to induce sleep and control pain, he administered compound jalap powder at intervals to withdraw serum from the blood and favor coagulation.

Hey improved this treatment by substituting a saturated solution of magnesium sulphate for the jalap. Valsalva's measures tended rather to increase the fluidity of the blood than otherwise. Under those of Tufnell it became more plastic. But to the strict recumbent position which he insisted upon is mainly due the large percentage of cures which he obtained. Of his ten patients, seven were cured and three died during treatment.

Instrumental compression has long been employed in many cases with varying results. Up to the time of Bellingham the results were anything but satisfactory. The instruments were generally clumsy contrivances, which hurt and injured the patients a great deal. The idea prevailed among practitioners that to be successful the instrument was to be applied firmly and steadily, so as to arrest the circulation and cause adhesion of the sides of the artery. One practitioner followed another blindly because it was occasionally successful in his hands, and not that any one had been so fortunate as to lay down broad and definite rules of action. It was for Bellingham in 1843 to point out upon correct and scientific principles that pressure should be exerted on the cardiac side of the tumor over a sound portion of the vessel. Thus was effected a complete revolution in the treatment of aneurysm, yielding results which are, says Gross, highly flattering, and contrasting most favorably with those of the Hunterian deligation. There is but little if any danger from this mode of treatment, and in the event of failure more radical measures may be substituted.

Vanzetti first proposed digital compression in 1846, and a year later Professor Knight, of New Haven, cured a case of popliteal aneurysm in forty hours by this mode.* Of a hundred and eighty-eight cases analyzed by Fischer there were a hundred and four recoveries, 75·3 per cent., with only one death caused by gangrene in a man seventy-one years old. Cure is obtained in a much shorter time by this method than by any other, except forced instrumental compression, the greatest objection to it being the difficulty in securing a sufficient number of assistants. Direct compression of the denuded artery was practiced during the close of the last and commencement of the present century by many Italian, French, and English surgeons. This consisted in exposing the artery and applying a temporary ligature over a cylinder of some suitable material and removing it after the sides of the artery were supposed to be fairly adherent to each other. This was occasionally followed by violent inflammation, secondary hæmorrhage, and death. The operation, modified to lessen these dangers, is performed at the present time, but its value is undetermined. Forced compression with an elastic bandage, where the aneurysm was located in the extremities, has been recently tried. This acts to produce a complete stagnation of the blood in the limb by shutting off the collateral circulation as well, and favors a rapid coagulation. Of seventy cases so treated thirty-nine were cured and four died, the percentage of recoveries being 55·6. The chief danger is from gangrene.

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* Surgeon Irwin, of the Marine-Hospital Service, treated successfully a case of popliteal aneurysm by digital compression, which appeared in the *Annual Report* of the service for 1891. Surgeon Sawtelle, of the Marine-Hospital Service, successfully ligated the femoral artery at Scarpa's triangle for a traumatic diffused aneurysm of the popliteal artery in 1889. See notes of the case in the *Annual Report* of the service for 1890.

Forced flexion was first practiced successfully by Thierry in 1852. It is very tedious, requiring from three to six weeks, and in a number of cases has failed signally.

Galvano-puncture was suggested by Benjamin Phillips in 1829, but was not practiced until about 1850, when it was advocated by Petrequin. It is exceedingly painful and very hazardous, tending not only to cause inflammation and suppuration of the sac, but also to cause serious systemic disturbance. The ultimate effects of the operation are very uncertain, though a few cures have been reported and many cases benefited.

Injections into the sac of the aneurysm with a view to coagulating its contents have also been tried in modern times, but the results have not been favorable, only a few cures having been effected. The risk of inflammation, suppuration, and gangrene is so great that the method is considered hardly justifiable.

Subcutaneous injection of ergotin was first introduced by Langenbeck in 1869. This consisted in the injection of ergotin under the skin just over the sac, the object being to induce contraction of the organic muscular fibers. In two cases reported by him, one, of the subclavian, showed improvement with considerable diminution both in the size and pulsation; the other, of the radial artery, the size of a hazelnut, was cured after a single injection. This method has been successful in only a very few cases. The earliest attempt to secure coagulation of the contents of an aneurysm by means of the introduction into the sac of some foreign material, as horsehair, fine wire, catgut, etc., was made in 1864 by Mr. Moore, of London. Dr. Levis, of Philadelphia, and others, have repeated the same experiment, but with only a few successes reported. To be sure, the cases were desperate ones, that did not admit of the adoption of the compression methods or the use of the ligature.

Acupuncture was suggested by Velpeau and tried in 1831, and Mr. Phillips was successful in a case of carotid aneurysm treated by it. It has been tried by other surgeons, but generally in conjunction with some other method, as proximate compression in Macewen's case of ilio-femoral aneurysm. In view of this fact, and the limited experience had with this method, it is difficult to estimate its value.

Macewen's method consists in irritating the lining membrane of the sac by means of a needle, the object being "to induce infiltration of the parietes with leucocytes and a segregation of them from the blood stream at the point of irritation." The amount of irritation should be merely sufficient to cause a reparative exudation, and should be distributed as evenly as possible over the entire surface. Excessive irritation should be avoided, as it may lead to softening and rupture of the sac.

A unique method was suggested by Sir William Fergusson in 1852. It consists in manipulating the sac by forcible squeezing with the intention of breaking up its fibrinous contents in order that some of the fragments might be carried to the distal extremity of the artery and, by plugging it up, effect a radical cure. In two cases treated by Fergusson by this method one was successful, but recovery was not effected until after nearly two years. Successful cases have also been reported by Teele, Blackman, and Page, of England, when conjoined with digital compression. Objections to this operation are, first, its uncertainty, as in one of the cases of Fergusson, although the distal artery was successfully plugged, the sac remained hollow and continued to extend; and secondly, its danger, especially in the arteries of the neck, where an embolus is very liable to be carried to the brain.

At the present day many surgeons prefer for external aneurysms, first, digital compression on the proximal side of the tumor, and, in case of failure, ligation of the vessel according to Hunter. Internal aneurysms, or those which admit of neither of the preceding methods, are treated by the method of Valsalva as modified by Tufnell. Treatment by galvano puncture, massage or kneading, flexion, the introduction of horsehair or wire into the sac, acupuncture, and the injection of coagulating substances into the sac or the tissues around it, is seldom employed.

December, 1894.

ABNORMITIES OF THE NASAL SÆPTUM AND THEIR TREATMENT IN THE CURE OF CATARRH.

By P. L. ANDERSON, M. D.,
CHICAGO

Sixty per cent. of all cases of nasal catarrh that the physician is called upon to treat are complicated by spurs, ledges, or deviations of the nasal sæptum. Our attention has not been particularly directed to these conditions, or to the important part which they play in the cause of nasal catarrh. We too often blindly follow a routine examination, and see only that which we have been taught to recognize as simply abnormal, overlooking apparently harmless deviations from the normal, because most text-books mention them simply to dismiss the subject in as few words as possible. Until quite recently the medical profession has remained in ignorance of the presence and injurious influence of spurs and ledges of the sæptum, the impression prevailing that, short of noticeable obstruction, they were harmless ornaments, to be treasured as eccentric mural decorations of the great Artist who never created two things exactly alike. Much more attention has been given to the condition of the turbinated bodies than to the causes of their abnormities. It has for ages been taken for granted that a dust-laden atmosphere and certain climatic conditions are the primary causes of catarrh. If this is true, how can we account for the freedom from catarrh of the seventy-five per cent. of those who have healthy noses? Statistics show that one out of every four persons has catarrh. Climate seldom affects a nose having a normal sæptum. Relapse after treatment directed solely to the turbinates for the cure of nasal catarrh is of such frequent occurrence that many physicians tell their patients that so long as they remain in certain climates there is no permanent cure to be derived from treatment, and advise them to take a change to a purer and a drier atmosphere. How many patients can and do follow this advice? Very few; they prefer to stay where prosperity has placed them, and, with the firm conviction that catarrh can not be cured, are prepared to smile knowingly when told it is a disease which can be radically cured, but not on the old lines of treatment. Effects certainly should receive proper attention, but causes, which have received too little notice heretofore, should be removed to obtain a permanent normal condition.

The importance of recognizing the existence, the nature, and the results of these conditions leads us to the consideration of their pathology, diagnosis, and treatment.

In size, spurs and ledges of the sæptum vary from two to ten millimetres in width, and from five to seventy millimetres in length; they are usually irregular in shape, with one extremity broadened; thickened at their point of origin with the sæptum, and tapering to an edge at their distal extremity; covered with mucous membrane; and sometimes, though seldom, hypertrophied. They develop along the suture line of the cartilaginous sæptum and the spine of the superior maxillary, or at the suture of the latter with the vomer and the cartilage of the sæptum. Their material varies according to their position—cartilage in the anterior extremity, cartilage and bone in the middle, and bone in the posterior part. Their origin has not been satisfactorily explained. That they are congenital must certainly be accepted in a small percentage of cases; malnutrition may account for a few more; but in the great majority of cases traumatism plays an important part in their development.

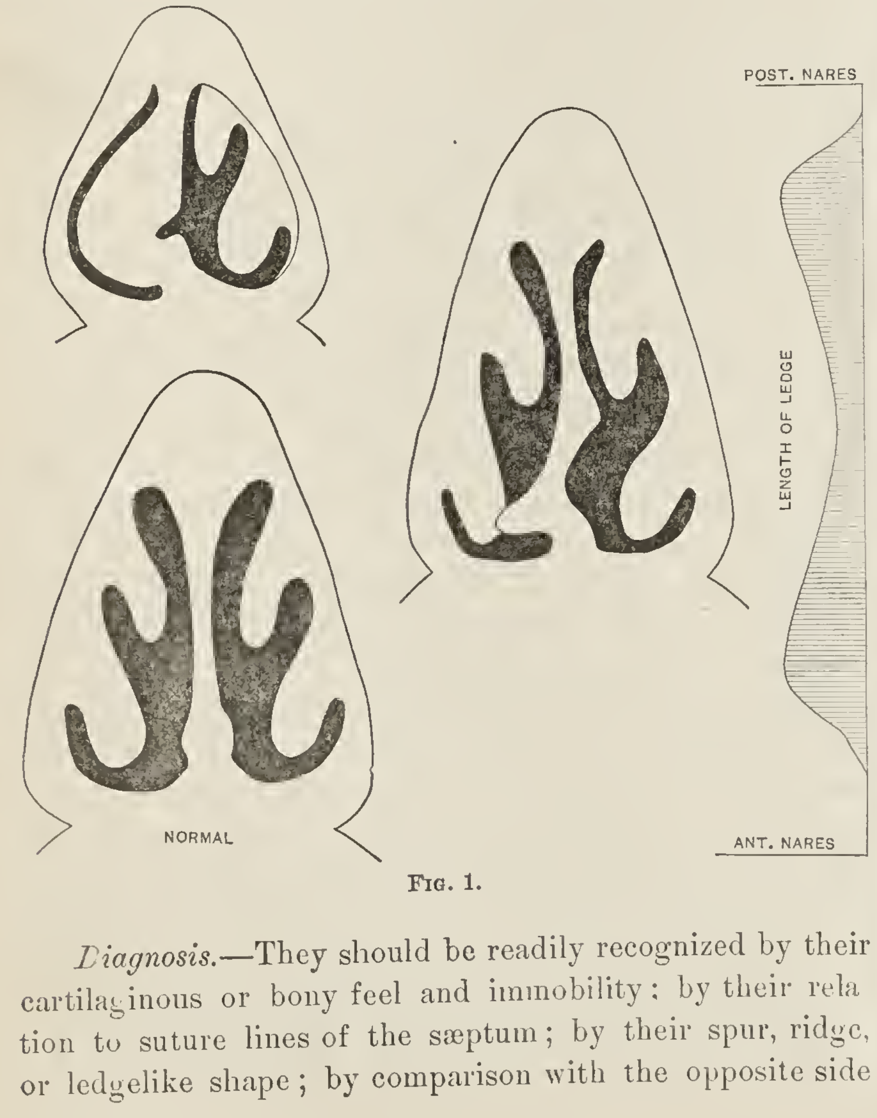

FIG. 1.

Diagnosis.—They should be readily recognized by their cartilaginous or bony feel and immobility; by their relation to suture lines of the sæptum; by their spur, ridge, or ledgelike shape; by comparison with the opposite side of the sæptum, and by the more or less obstruction *per se* or which they cause by irritation of the opposing turbinated body by pressure or occasional contact. The ledge may lie so low down as to be mistaken for the floor of the nose.

The treatment is surgical; removal by the nasal saw or drill. Bone-cutting forceps are too bulky for the operation, obstructing the view of the surgeon. The écraseur would slip off, and for the same reason the galvano-cautery snare would be useless and severe. The chisel is slow, and the field of operation is soon obscured by hæmorrhage.

The enchondrotome removes but a narrow shaving at a time, and for this reason should not be considered. The dental drill is used mainly for the purpose of giving to the saw a starting point in cases where the obstruction is so great that the saw can not be safely introduced without it.

As the nasal saw is the instrument on which the success of the operation so much depends, it would not be out of place to consider the various points a saw should or should not have. It should be probe-pointed to avoid injury to the tissues posterior to the obstruction. The cutting surface of the blade should not extend more than thirty-five millimetres from its point, that injury to the tissues anterior to the obstruction may be avoided; the stroke of the nasal saw is necessarily short, and a longer cutting edge is superfluous. The teeth of the saw should not be so long or so coarse that they catch in the bony tissues and obstruct the free play of the saw, and the teeth should not be so fine that the saw will act more as a file than as a saw. From its probe point to the handle the blade should be of the length of the nasal cavity; if it is longer, with the necessary length of handle, it will strike the rhinoscopic mirror of the operator; if of shorter length, it will fail to reach the extreme posterior ledges. The blade should not be so thin and flexible that it leaves you in doubt as to the location and course of its distal extremity. You must know definitely where the point of your saw is traveling, otherwise it may take a circular course, and leave enough material for another operation. The blade should be as thin as is consistent with this requirement; in width it should be as narrow as the required strength will admit, so that its unnecessary size may not obstruct the view. The handle should be of such a size and shape that it may be firmly grasped by the thumb and the index and middle fingers, which gives much better control over its movements than when it is bent or curved at an angle to be held in the fist like a plow handle. A straight handle, of the shape and roughness of a three-sided file, eighty millimetres in length, each of its three sides ten millimetres in width, with one flat side uppermost, completes the description of a new nasal saw which I take great pleasure and no little pride in introducing to the

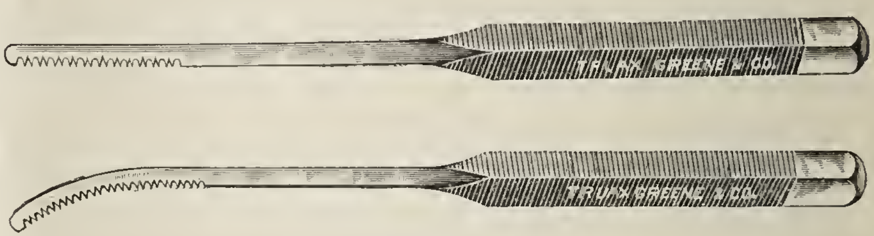

FIG. 2.—(Half size.)

medical profession as a saw designed from practical experience by the author.

Operation.—The parts should first be cleansed with an alkaline spray ("Dobell's"), rendered thoroughly aseptic by a spray of bichloride (1 to 4,000), after which apply on a cotton tampon a ten-per-cent. solution of cocaine hydrochloride; the parts become anæsthetized in from fifteen to twenty minutes. It is better to place the patient on the operating chair or table to avoid syncope, which sometimes occurs from the effects of the cocaine. With the head well steadied, the saw travels through the tissue in a few seconds. With narrow-bladed angular scissors clip the soft parts usually found attached to the lower side of the now severed bony part of the ledge, and with a forceps remove the obstruction. Now apply on a cotton-carrier peroxide of hydrogen, of full strength, to control the hæmorrhage, which is often profuse, but never alarming, and under this application is checked immediately. Should it be necessary, on account of hæmorrhage during any stage of the procedure, to obtain a clearer view of the field of operation, apply hydrogen peroxide, of full strength, to the cut surface, then gently remove with a cotton swab the foamy substance which is produced by the action of the hydrogen on the blood; the surface will now remain for some little time as free from hæmorrhage as before the use of the saw. With a powder-insufflator project upon the cut surface finely powdered aristol, which not only is an antiseptic of known value, but firmly adheres to the surface and prevents the constant oozing of blood and serum from the wound. Cleanse the parts daily for the next ten days with an alkaline spray ("Dobell's"), followed by a spray of hydrogen peroxide, of half strength; then dress with aristol powder. In a month or six weeks the exposed bone is fully covered with a new mucous membrane. Little or no reaction occurs as a result of the operation, and the patient does not lose a single day from his business in consequence.

Champlain Building, 126 State Street.

A CASE OF MALARIAL HÆMATURIA,

WITH A STUDY OF THE PLASMODIUM.

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Mr. J. A. V., aged twenty-three years, was admitted into the St. Louis Southwestern Railway Hospital, December 6th. He was an American, a resident of Arkansas for the past five years, the latter two having been spent on the banks of the Red River. He suffered from chills and fever two years ago and again in July last year.

Present Illness.—On the night of December 1st he had a chill, followed by high fever the next morning, which continued constantly, always being at its fastigium in the evening.

Five days later, while on the way to the hospital, he had another chill. His temperature on his entrance was about 102° in the morning and 103° in the evening. Next day, 101° in the morning and 102° in the evening. Third day, temperature in the morning was 100° and in the evening it was normal, where it has since remained.

Development of Hæmaturia.—On the morning of the fourth day of illness the urine first passed was tinged red; afterward the color became more pronounced, and was still present on the fifth day from the onset. The color was of a dark red and after the urine had stood four or five days a thick reddish coagulum appeared on the top.

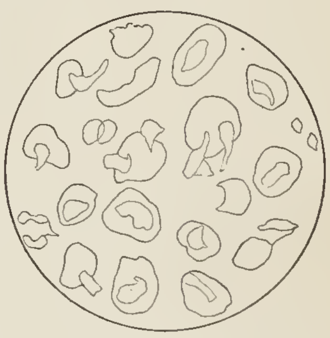
Unfortunately, no microscopical examination was made.

Jaundice.—Severe icterus appeared on the fourth day of illness, and when he was admitted the whole body was of a uniform dark-yellowish color.

Blood Examination, December 8th.—A puncture was made on the end of the finger, and as the blood flowed out the color seemed to be more like that of reddish-colored serum and appeared to have an oily cast, indicating severe dyscrasia. Under the microscope extreme poikilocytosis was observed and all the corpuscles seemed deficient in coloring matter.

Those affected were in all stages of disintegration, some being represented by about a fourth of their normal outline with a concave border on the opposite side. In others one part of the globule preserved the normal shape, while on the other side only a rim of the cell could be seen, being partly detached at one extremity. Often the corpuscle appeared as if it had been split in two and the two portions with concave central borders stood opposite to one another.

The Parasite; ×580 (Leitz).—About one corpuscle in every fifty was affected. The parasites were seen both within and without the red cells. The intracorpuscular were of different sizes and shapes, the prevailing one probably having an almond outline with a hyaline or brownish color without pigment. It looked as if it had been stamped or cut out from the red cell, being in nearly every instance surrounded by a colorless rim. Often a portion of the protozoon would be partly extruded from the corpuscle. In some cases two hæmatozoa having the same shape occurred within the red disc. Some of the organisms were elongated, convex on one surface and concave on the other. Those parasites without the cells were also of different sizes and outline, some being round and hyaline, often not more than a tenth or a twentieth the size of a normal red globule, while others were a fourth or even a half its size. Only in a few instances did the plasmodia have any pigment discernible. Perhaps the failure to observe pigment may be accounted for by the low power of the lens.



Specimens of the parasite as seen in the case of malarial hæmaturia. White blood-corpuscles and pigment not shown. (Copy of original drawing, only approximate in size.)

Free pigment was scattered throughout the field, often dark in color, while in others bright red masses were present. Many large lymphocytes were seen.

Stained specimens were unsatisfactory.

The blood was again examined December 18th, and the corpuscles had more of the normal appearance and only one organism was found. It was of a pear shape, hyaline or light brownish in color without pigment and very large.

Treatment.—Ten grains of quinine with a few drops of dilute nitrohydrochloric acid were given every four hours. Bowels kept open. Three days after cessation of fever five drops of Fowler's solution were given three times a day.

Result.—The patient was discharged cured on December 21st.

AN OPERATION FOR RELIEVING PHIMOSIS WHEN COMPLICATING GONORRHŒA, WITHOUT INFECTING THE WOUND.*

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All general practitioners see many cases of gonorrhœa, and among them is frequently one occurring in an individual the subject of more or less marked phimosis. The swelling of the glans penis and prepuce incident to gonorrhœa increases the degree of phimosis. The pain produced by an attempt to retract the prepuce for purposes of cleanliness induces the patient to defer this act longer and longer, until finally it becomes nearly or quite impossible. Gonorrhœal pus collects beneath the prepuce, especially back of the corona glandis. It can not be removed with a gonorrhœal syringe.

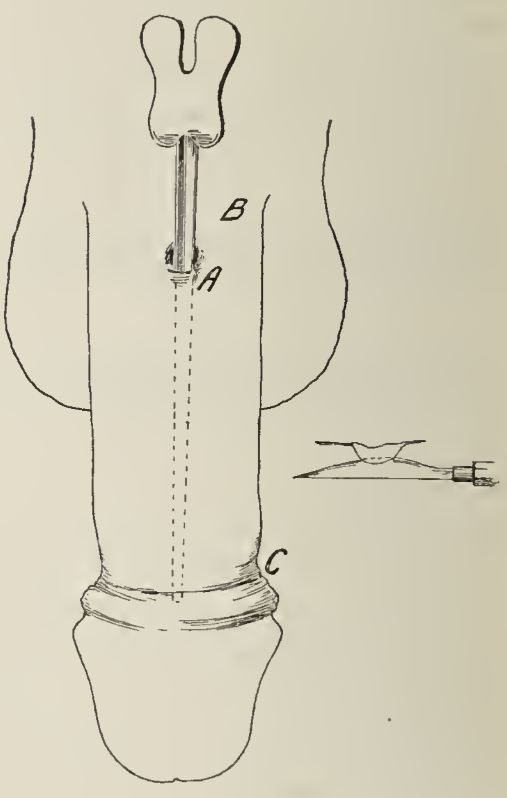
The contact of the irritating pus soon causes balanitis and posthitis, with gonorrhœal ulcers, all of which complicate the original trouble, interfere with treatment, and make the patient miserable.

The usual treatment in such cases has been to slit up the back of the prepuce, and later on to circumcise, or to proceed to circumcision at once; but in either case the wound becomes infected, and an indolent ulcer the size of the entire incision results, which may last for weeks, and leaves an unsightly scar.

To relieve the constriction, and at the same time avoid infection of the wound, I adopted the following simple procedure, which, so far as I know, has not been suggested before:

1. Shave the pubes, penis, and scrotum.
2. Thoroughly scrub the parts with a solution of bichloride of mercury, 1 to 2,000.
3. Compress the glans penis, forcing the blood out, and dexterously slip back the prepuce over the corona glandis, converting the phimosis into a paraphimosis.
4. Cleanse the glans and prepuce well with the same antiseptic solution, and have an assistant hold the glans wrapped in cotton wet with bichloride.
5. Place a rubber band about the penis at the level of B, near the base.
6. Inject a four-per-cent. solution of cocaine subcutaneously, entering the needle just back of A and passing it down to and under the constriction at C, slowly injecting the solution during withdrawal.
7. Pick up the skin at A with two forceps, and snip with scissors.
8. Withdraw the foreskin to its fullest extent, bringing the constriction (junction of mucous and cutaneous surfaces) about a quarter or half an inch back of the corona glandis.
9. Introduce subcutaneously a grooved director at A, and pass down beneath the constriction.
10. Upon the director pass a tenotome flatwise, until the constriction is reached, then turn the cutting edge up, and gently sever the constricting band *without cutting through the mucous membrane or skin.*
11. Withdraw the instruments, remove the rubber band, check the few drops of blood that appear, take one or two fine catgut stitches in the wound, and close it with cotton and collodion, to prevent the absorption of any poison that may afterward touch it.
12. Lay one thickness of iodoform gauze over the glans, again compress it, and draw down the prepuce to its former position.

The opening in the prepuce is appreciably enlarged at the time, and this increases during the first three days. To prevent œdema of the penis, bandage the organ snugly, swing the scrotum up over the abdomen, and give an opium pill the first two or three nights to prevent priapism.



The patient is now able to retract the prepuce at will, and daily dressings can be applied to the irritated membranes. The soreness disappears in a few days.

When the gonorrhœal discharge has entirely ceased, circumcision can be performed if considered advisable; but in the cases where I have performed this operation, the opening in the prepuce has been rendered so large that there was no possibility of a phimosis occurring with any subsequent attack of gonorrhœa, and circumcision was not indicated. The operation is equally applicable to phimosis complicating chancroids. If the chancroid should be in the dorsal median line beneath the prepuce, pass the grooved director and tenotome at one side.

The wound in the skin need only be large enough to admit the tip of a grooved director, and the resulting cicatrix is almost invisible. The tenotome should be well bellied and have a keen edge.

A Bureau of Autopsy.—In the year 1881 there was founded at Milan a unique and curious institution, which has been at work ever since. This was the Loria Bureau of Autopsy. It was founded, and placed under the direction of Professor A. Verga, for the use of the inhabitants of Milan. That is to say, either courts of law or the family of a deceased person can have a complete examination and report in cases where a death has occurred under suspicious or strange circumstances. All autopsies are recorded, and may be consulted for purposes of study. The bureau is intended to serve two purposes—the advancement of knowledge, and to remove one objection to cremation raised on the grounds that crime may be less easy of detection when the deceased is effectually placed beyond the reach of examination.—*Hospital.*

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* Read, and the patient exhibited, before the Cleveland Medical Society, December 28, 1894.

A SUGGESTION AS TO THE TREATMENT OF PENETRATING WOUNDS OF THE CILIARY REGION AND LENS.

By ROBERT L. RANDOLPH, M.D.,
BALTIMORE.

Penetrating wounds of the ciliary region in the majority of cases lead to loss of sight. Such wounds then constitute the most dangerous injuries that can happen to the eye. Sympathetic ophthalmia usually has its origin in an injury of this character, and it is the fear of this termination that induces the surgeon to remove the injured eye at once. It has become indeed almost a habit to abandon hope as soon as we see an eye with a penetrating wound of the ciliary region and lens, and frequently no effort whatever is made to save the eye.

I am not in favor of temporizing with this class of cases, but it is certainly improper, to say the least, to take out the eye on general principles, and yet more than once I have seen an eye enucleated where the chances for sight were not absolutely gone, and where there was strong reason for not fearing sympathetic ophthalmia in the near future.

Practically all wounds are infected. If not infected by the foreign body, they become so later on by the entrance into the eye of organisms through the passage made by the foreign body. There is no more favorable place in the eye for the lodgment and development of organisms than in the space between the iris and lens, and particularly in that part of the space where the ciliary processes project out. Here we find usually the point of injury, and from this point the microbes readily develop and can soon involve all parts of the eye. In many of these wounds the foreign body passes through into the lens, in which case the lens is penetrated by the aqueous humor, swells up, and becomes opaque; in other words, traumatic cataract forms. Of course, when the lens swells up it occupies more space than normally, and this means it exercises pressure in some direction, usually toward the wound, which further means that pressure is made upon the iris and ciliary body. At this latter point we have already an intense inflammation, and it is clear that every symptom of this inflammation will be made worse by the pressure of the swollen lens.

In the operation for soft cataract the great danger is this swelling up of the lens and the consequent pressure upon the iris and ciliary body, and so causing irido-cyclitis. It is possible in these cases that infection has also taken place; but it is unquestionably the fact that the swollen lens, if not entirely, is in great measure responsible for such an inflammation.

Now if under certain conditions with a normal iris and ciliary region the lens can do so much harm, how much more harm it can do when the iris and ciliary body are the seat of a traumatic inflammation As is well known, soft cataracts are found in children, and it is important to remember that the older the patient the more apt is the lens to give trouble.

The points that I wish to bring out are—

1. The peculiar danger attending wounds of the ciliary region.

2. The tendency to adopt radical measures at once in dealing with these cases.

3. The fact that the crystalline lens often acts as a foreign body, and that its presence renders the condition of the eye more dangerous.

The truth of these propositions is illustrated by the following histories:

A man, thirty years old, was struck in the left eye by a small particle of steel. He was a mechanic in the Baltimore and Ohio Railroad shops at Glenwood, Pa., and not far from Pittsburgh. He went at once to a well-known oculist in the latter city and was told that the eye should be removed immediately, and was given to understand that there was nothing further to be done. He refused to submit to an operation until he had consulted another surgeon. I saw him on the third day after the injury. There was a small wound a little above and to the nasal side of the cornea. The wound started at about a quarter of an inch from the corneo-scleral junction and passed outward into the cornea for an eighth of an inch. The iris was prolapsed at this point and the lens was opaque and bulging forward. He had been using atropine and the pupil was partially dilated. He did not recognize light promptly, though light perception was present. The tension was somewhat lowered, and the eye was sensitive to the touch. At the point of injury the posterior chamber was obliterated, but below there was still a space between the lens and iris. It was a typical picture of irido-cyclitis. He was willing to have anything done but enucleation, and only one other alternative occurred to me, and that was to enlarge the wound, cut off the prolapsed iris and deliver the lens, and endeavor to push out the inflammatory products at the site of the injury. This was done after first sterilizing the instruments. I found no trouble whatever in getting out the lens, and I got a perfectly black, clear pupil. After the operation atropine was instilled and a pressure bandage was applied, and two weeks later he was able to count my fingers a foot from his face. All acute symptoms had passed away and he had had no pain since the operation. When I last heard from him he could tell a man from a woman across the room. This was the last I ever heard of him, and I am unable to say what vision he has at present.

The second case was that of a track foreman, aged fifty years. He was also from Glenwood. He had received a penetrating wound of the ciliary region of the left eye. The foreign body was a piece of steel and had entered the eye from the temporal side, making a wound about a quarter of an inch long into which the iris prolapsed. He said that a friend had extracted the piece of steel as it was sticking out of the wound. He had also gone immediately to Pittsburgh and consulted an oculist, and, just as in the first case, this oculist advised the removal of the eye, and told the man of the danger of delaying the operation. The idea of such an operation, however, frightened him away, and he came to see me the next day. The entire lens looked as though it were opaque, though there was no external evidence of pressure from this source. The eyeball was sensitive to the touch and was much inflamed. Hypopyon was present to a slight extent. I agreed with the oculist in Pittsburgh, and said that the eye ought to come out at once. I may add that he had light perception and that was all. He could not bear the light on the eye, and was troubled with distressing photophobia in the other eye. I tried to persuade him to submit to enucleation, as I was quite certain that he would never see again with that eye. He positively refused to have the eye removed. I thought I would attempt the removal of the lens simply as an experiment, though I had no idea that it would do any good. The wound was located below and to the temporal side of the cornea and passed up along the latter. I enlarged the wound to twice its original size, performed an iridectomy, and pressed out as much of the lens as possible. I am sure I failed to deliver the whole lens, but I got most of it out, and at the same time I pressed out the pus in the anterior chamber. The operation was a very painful one, owing to the congestion and consequent failure of the cocaine to act. Immediately after the operation he could see my hand passed in front of his face, but could not count the number of fingers held up. A compress bandage was applied and atropine was ordered to be dropped in the eye every three hours. After the first day he had no more pain, and in two weeks he counted the number of fingers held up six inches from his face. I saw him again two weeks after this, but there was no further improvement. The eye had lost all signs of irritation.

In both these cases after removal of the lens the ophthalmoscope revealed large opacities in the vitreous body, which no doubt were the results of hæmorrhages. I think it highly probable that the vision still further improved with the clearing up of those opacities, though it is unlikely that good sight was or ever could have been obtained.

The third case was that of a boy ten years of age who, in trying to pull a pen out of the penholder, had run the pen into his left eye. He had put the penholder under the desk lid and got a companion to sit on the lid while he knelt on the floor and pulled at the pen. The penholder slipped from under the lid and, as I have said, pierced his left eye. The wound was a small one, and was at the corneo-scleral junction and just at the top of the cornea. The iris was torn from its ciliary border, the capsule of the lens was ruptured, and traumatic cataract was present, the anterior chamber being partly filled with cortical matter. The wound had been received four days previously. The eye was very painful and the boy could not face the light. It could be easily seen that the lens was acting as a foreign body and I determined to remove it. He was chloroformed, and I enlarged the wound in the cornea, cut out a small piece of the iris, and without any difficulty pressed out the soft cortical substance. The eye made a rapid recovery and the boy now sees quite well. It is more than probable that the removal of the lens would have suggested itself here to any one as the most sensible course to follow, but the difference between this case and the first two was not a wide one, and if left to itself much longer there was scarcely a doubt but that the inflammation would have become worse and sight would have been ultimately lost.

It will be seen from this that in two cases where it is usually thought necessary to enucleate the eye, the removal of the lens was followed by recovery. When I say recovery, I do not mean that such an eye has the possibilities of an eye after an uncomplicated cataract extraction. In both cases—in fact, in all three—the retina had undoubtedly suffered permanent injury, and while all the evidences of an acute inflammation had passed away, it is certain that vision had suffered considerable loss. Just how much vision was preserved could only be determined after the lapse of several weeks when the opacities in the vitreous body had been absorbed. The vision, though that was present two weeks after the operation, undoubtedly justified the operation, and it is reasonable to think that in similar cases the removal of the lens will sometimes do away with the necessity of enucleation and leave the eye with some vision.

It should be remembered that in this class of cases there is generally only one thing done, and that is enucleation, and the reason why we usually follow this course is the fear of an outbreak of sympathetic ophthalmia. Now, this disease rarely, if ever, shows itself for at least three weeks after the injury, and usually at a much later period; and again it should be remembered that sympathetic ophthalmia is a very remote contingency, and, while it should ever be had in mind as a possibility, it should not, in my opinion, determine us to take out an eye in the first week after the injury unless the eyeball is soft and there is a protrusion of the vitreous body and a large corneal wound. If much of the cornea is cut off from its source of nutrition it is rarely able to withstand the attack of organisms and almost always sloughs, and in those cases where the wound extends clear across the cornea we frequently have panophthalmitis.

The cases that are particularly well adapted to this method of treatment are those where the wound is small and located at the corneo-scleral junction, and where it is not only easy to enlarge the wound, but it presents the most natural point for the egress of the lens. The time to operate is as soon as we see the patient. Waiting for further developments means ultimately enucleation. The longer we wait the more complete become the adhesions between the anterior capsule and the iris. An exudate spreads itself out over the posterior surface of the iris, the capsule of the lens, and ciliary processes, and later on this exudate is replaced by a membrane that serves to enfold entirely this part of the eye and transform it ultimately into a mass of disorganized tissue. In this stage it is almost impossible to remove the lens and even difficult to perform an iridectomy. I have a number of times enucleated such eyes months after the injury, and on cutting open the eye and separating the parts have been struck by the condition of the ciliary region. It is generally impossible to separate the mass at this point without tearing it all to pieces. When the operation is done before the exudate has become organized, the iris can readily be drawn out and the lens delivered with comparative ease.

Conclusions.—1. In penetrating wounds of the ciliary region and lens, even where light perception is gone, and where usually enucleation is performed, the removal of the lens will often be followed by the recovery of comparatively useful vision.

2. The time to perform the extraction is in the first week of the injury, when there is less reason for entertaining the fear of sympathetic ophthalmia, and that sympathetic disease is too remote a contingency in any event, and certainly at this stage, to outweigh every other consideration.

3. The effect of the operation is to remove what is really a foreign body, and at the same time it frees the ciliary region of its infectious contents—very much the effect of opening an abscess.

4. Cleanliness is imperative in this operation. I usually sterilize my instruments in a two per-cent. solution of bicarbonate of sodium, and keep the field of operation constantly irrigated with a two-per-cent. solution of boric acid. Any solutions that irritate—such, for instance, as sublimate

solutions—are to be avoided, as they weaken the resisting powers of the eye. The after-treatment consists in the instillation of atropine, one per cent., every four hours, and the wearing of a compress bandage.

5. Improvement in these cases, as would be expected, is rapid, and unless it is rapid one should not delay enucleation.

ON A LOCAL

VASCULAR DISTURBANCE OF THE FŒTUS,

PROBABLY DUE TO THE INJECTION OF TUBERCULIN IN THE PREGNANT COW.

By THEOBALD SMITH, M. D.

(From the Pathological Laboratory of the Bureau of Animal Industry of the United States Department of Agriculture.)

The two following interesting cases are published not for the purpose of formulating any new hypothesis concerning the relationship existing between the maternal organism and that of the fœtus *in utero*, but to stimulate others to search for similar cases. The number of cattle killed after a positive tuberculin reaction is at the present time by no means insignificant, and if careful examination be made of the uterus in every animal we may expect more illustrations of the striking condition to be described.

Case I.—A Jersey cow, four years old, received an injection of tuberculin April 17, 1894, and gave a well-marked reaction on the following day.* The injection was repeated April 27th, but a maximum elevation in temperature of only 2° F. was noted on the following day.

On May 7th a third injection was made, and a short but well-marked rise to 105·8° was noticed on the following day.

On May 8th five times the usual dose was injected: one half in the region of the neck, the other half in the region of the shoulder. Only a very slight elevation was noticed. Unfortunately, the notes do not state on which side these injections were made. It is highly probable, however, that the three last injections were distributed over both sides of the neck, as this is customary when injections are made in close succession.

The cow was killed May 10th by a blow on the head and by cutting the vessels of the neck.

The following is an abstract of the notes dictated by the writer at the autopsy:

Animal about four years old, in rather thin condition.

At the seat of the first injection (May 7th) a small amount of blood extravasation. At the seat of one of the second injections ecchymosis with vascular dilatation in the subcutis over an area three inches in diameter. Induration and pale discoloration of the subjacent muscular tissue over an area two inches by one.

The tuberculous lesions are distributed as follows:

Right retropharyngeal gland of from three to four times the normal size. Contains many yellowish, cheesy foci of irregular outline.

The tonsils and other glands of the head normal.

In the left bronchial gland, two necrotic, still firm foci, each about a quarter of an inch in diameter. No other tuberculous lesions in the thorax.

Several abscesses imbedded in neoplastic tissue which binds the second stomach and liver to the diaphragm (traumatism due to foreign body).

In about ten mesenteric glands tuberculous lesions are present. The largest focus is about half an inch in diameter and is made up of many yellow tubercles.

In the liver, one firm, centrally necrotic focus, about a quarter of an inch in diameter. In one portal gland, a similar sixteenth-inch focus.

This case was thus one of food infection (retropharyngeal, mesenteric, and portal glands infected, one small focus in liver) with slight air infection (one bronchial gland).

That part of the autopsy which is of interest in this connection is the uterus. This I brought to the laboratory and examined carefully. I found twin fœtuses, each about sixty millimetres long from vertex to root of tail. In both was noticed, even before the amnion was removed, a spot having a blood-red color, situated in front of the shoulder blade and shoulder joint. This intensely red spot is surrounded by a tributary region of injected vessels.

In fœtus No. 1 the injection is symmetrical on both sides of the body. There is a dark, blood-red triangular spot situated directly in front (cephalad) of the cephalic margin of the scapula, toward which the injected vessels converge. The injection consists of a slightly anastomosing network of subcutaneous vessels, the widest about three tenths to four tenths of a millimetre in diameter. It is densest near the hæmorrhagic area and gradually thins out toward the periphery. It extends as far as the occiput, over the sides of the head, filling in the space between eye, ear, and middle line of the neck ventrally. A very delicate network begins at the ninth rib and converges over the scapula toward the hæmorrhagic area. A slight injection is observable on the lateral aspect of the fore limb from the carpus upward.

In fœtus No. 2 the left side is more affected than in fœtus No. 1. The hæmorrhagic spot extends from near the median dorsal line ventrad to the shoulder joint, a distance of about six millimetres. It is two to three millimetres wide. The vascular injection extends not only over the region described in the first case, but even beyond. It nearly encircles the eye and extends beyond the ear to the top of the head.

On the right side the injection is absent.

Case II.—This subject was a cow over ten years old. The tuberculin was injected under the skin in front of the left shoulder by Dr. Cooper Curtice, to whom I am indebted for the facts relating to it. The injection was made November 30th, at night. The reaction next day was a moderately severe one. I am told by Dr. Curtice that the animal flinched when the needle punctured the skin. The cow was killed December 5th, four days and a half after the injection. The lesions which I found at the autopsy may be very briefly summarized.

Cow over ten years old. Very slight subcutaneous vascular disturbance at the seat of the tuberculin injection. Corresponding shoulder lymph gland (inferior cervical) hyperæmic and dotted on section with minute punctiform hæmorrhages.

Tuberculous lesions were found in three dorsal mediastinal glands and in one bronchial gland. In the lungs there were in all six foci, the largest about half an inch in diameter. Abscesses in the connective tissue between second stomach and diaphragm due to a piece of wire. Two similar abscesses in the liver probably secondary to the traumatic infection.

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* These tuberculin tests were made by F. L. Kilborne, B. V. S., to whom I am indebted for the notes on that part of the work.

The fœtus was seventy millimetres long from the vertex to the root of the tail. In front of the left shoulder there was plainly visible a blood-red spot suggesting subcutaneous hæmorrhage. There was no surrounding network of injected vessels as in the case of the two fœtuses described above, nor was there any indication of vascular disturbance on the opposite side. The blood-red spot was situated directly in front (cephalad) of the scapula and slightly above (dorsad of) the level of the shoulder joint. Its dorso-ventral diameter was about eight millimetres, the one at right angles to it (cephalo-caudal) about four millimetres. The spot was thus oval in outline.

One of the twins of the first case was hardened in Müller's fluid and alcohol, and the injection was by this means very perfectly preserved. In the fœtus of the second case the same process of hardening was not so successful, probably because of the existence of a denser skin. The intensely red spot in the fresh embryo has given way to a dull spot not noticeable unless attention is specially called to it.

The nature and exact seat of the lesion has not yet been investigated. The writer hopes soon to make transverse sections in order to locate and define more accurately the appearances described.

If we briefly summarize the facts presented we note that in one animal having received two injections of tuberculin on consecutive days, probably on different sides of the neck, twin fœtuses showed hæmorrhage associated with vascular injection having its focal point at a place corresponding to the seat of injection in the mother. In on- fœtus both sides were involved; in the other, only the left. In the second case the injection was made only on the left side, and the fœtus examined four days and a half later showed a distinct blood red, probably hæmorrhagic, spot at the corresponding region.

A small number of fœtuses of more advanced age and several of nearly the same age have been examined since, but no lesions of the kind have been found. It is probable that we must realize a definite combination of certain conditions before this remarkable effect may be actually seen. These are a certain age-limit of the fœtus, a certain time-limit between the tuberculin injection and the autopsy, and perhaps a certain impressible condition of the mother. The disturbance being vascular, the lesions noticed may in course of time entirely disappear.

THE DISPENSARY EVIL.*

By FERD. C. VALENTINE, M. D.

Much has been recently said regarding the monetary injury done the medical profession by charitable institutions, and particularly by dispensaries. There is sufficient basis for these complaints to warrant serious consideration. Unfortunately, adequate presentation of the fact is beyond my weak powers, and almost impossible within the ten minutes your by-laws prescribe as the time limitation for papers read.

There can be no doubt that dispensaries are frightfully abused. Scoundrels who can pay well for professional services come to dispensaries to steal services and medicines and appliances. How often this happens is well shown by the books of the West Side German Dispensary. There, more than in the records of any other charitable institution, we find the entry: "Refused to treat him (or her) because of ability to pay." Much of the credit thereof you will certainly give to me. Every incumbent of a class and every assistant will remember that during the nearly two years in which I have had the honor to be this medical board's president I instructed each one to exercise the utmost vigilance in this regard. I have gone so far, even, as to warn every one that I would apply for his dismissal if he knowingly gave to unworthy people the services which rightfully belong to the poor.

That such a course is correct no one can deny. If our services were given indiscriminately, incalculable injury would be done the profession, and especially its younger members. And the deserving poor would be equally hurt thereby.

Much of the damage done the profession has been felt since November, 1893. On the 6th of that month this dispensary was opened in its new building, at 328 West Forty-second Street, to a wider activity than could have been possible in its obscure little house on West Thirty-eighth Street. The dates came closely together. It is to be regretted that some men associate one with the other.

But is it not a fact that the general financial and business depression, which threw upward of a hundred thousand people out of employment in New York city alone, began to be most keenly felt from October or November, 1893? Is it not equally true that, thanks to the efforts of the medical profession, sanitation, sanitary education, and public precautions have since then begun to bear their fruits? Do we not daily read in the medical journals of the very small amount of illness throughout the world?

Therefore it can not be held that the West Side German Dispensary has had anything at all to do with the reduction of practice.

But it does not stand alone under the charge of augmenting the dispensary evil. All institutions founded and conducted by charitable people directly or indirectly contribute to it. Should, therefore, all such institutions be abolished? A few may possibly steal those services and medicines which belong to the poor. Should, therefore, worthy sufferers be allowed to die, to leave children to increase the ranks of the depraved and the criminals? A man unable to work because of illness can not prevent his children's need for food. They will not starve; therefore it is necessary for public weal that the bread-winner recover, lest his children prostitute themselves or become thieves for sustenance.

Many reasons, and all of them self-evident, could be adduced for the existence of public and private charities.

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* Read before the Society for Medical Progress of the West Side German Dispensary, New York, November 17, 1894.

The injury done by them to those who suffer losses thereby can, in my opinion, be minimized, but never entirely cured.

Our profession, beyond all others, is the least amenable to the relief from imposition. The very character of our vocation inhibits this. No one enters the practice of medicine with the intention of earning more than, at best, a fairly decent livelihood. If he does, he will soon discover his mistake.

Then, looking about for the cause of his disappointment, he falls upon the thousands of people to whom the services he would sell are given gratuitously at the dispensaries. To this he hastily attributes his exchequer's ebb. He forgets that to render the best possible services he must annually spend a fortune in new books, instruments, and appliances. He forgets also that many medical men who enjoyed the reputation of earning fortunes were buried by the charitable contributions of their colleagues.

Then, again, does not every one daily give away his services without even a thought of reward? To demonstrate this assertion, let me cite a small instance.

You are riding in an elevated train. Opposite you sits a woman whose garb, whose jewels, proclaim her to be of the wealthy class. At her side is a little child; its manner, its prattle, can not but attract your attention. The child asks its mother a question and looks up for her reply. A train dashes by over the opposite track. Bits of steel are ground from the rails and the wind whirls them through the open window. The child utters a cry of pain and plunges its little gloved hand into its eye.

As unconsciously as you respire, you have leaped from your seat, have deftly turned the child's lid, removed the steel before it penetrated the cornea, and returned to your place, not even thinking of the eye you have saved.

Only this moment do you attempt to recall how many times you have done such a humanitarian, such a purely charitable act. Would a fee of ten dollars not be insignificant for the service?

Now, considering that the elevated roads in this city carry six hundred thousand passengers daily, would it be excessive to estimate that one in each one hundred thousand suffers the accident and is relieved without paying a fee for it? That would represent six daily—two thousand one hundred and ninety in a year.

Thus, by yielding to the promptings of the most ordinary humanitarianism, the profession loses just twenty-one thousand nine hundred dollars every twelvemonth. And would one of those thus receiving gratuitous services willingly lose an eye for ten dollars? Certainly not one.

Would you, because the profession thereby loses money, let a fellow creature continue to suffer and take the chance of becoming blind? Whatever motives may underlie this whole matter, the most sordid of medical men would not commit such a crime. Thank God for it!

But, not only in removing foreign bodies from the eye, for which you do not expect even thanks, do you daily, hourly toil, slave, struggle. Ours is the only vocation which continually labors against its own interests. Do you not study, write, and speak in public, teaching how to prevent the very diseases that give you your bread?

Did not Jenner show how small-pox would be eventually stamped out?

Did not Koch struggle to combat phthisis?

Did not Pasteur lead on to the road which will eventually render the rabid dog's bite innocuous?

Are we not all laboring to-day that diphtheria, the most profitable of all diseases, shall cease to exist?

But why repeat examples?

Our profession is a priesthood—one without which no other could exist. By striving for *corpus sanum in publico*, we make place for *mens sana*.

Not one of you will rise when I ask for him who will not do his utmost to prevent disease. No, not one.

I have shown you that twenty-one thousand nine hundred dollars are lost to the profession annually in this city by a very small matter. Who will estimate the millions of dollars you every year leave in pockets where they do not rightfully belong? A small fraction of this sum would sustain every dispensary in the United States.

But let us revert to the subject of this paper.

Many dispensaries are open to the poor in the evenings.

It is said that those evening classes are of greater financial injury than all others to the profession. It is alleged that mainly those who have followed her "whose feet take hold on hell" are treated in the evenings. And it is held that those who come at night work during the day, earn money, and consequently can pay for professional services.

At a first glance all these propositions appear correct. But can we ever be satisfied with our first impressions?

The prime postulate, that the evening classes are of greater monetary injury to the profession, will be quickly swept away in considering the others.

It is perfectly true that the majority of cases which visit the evening classes are attended to in my department. Equally true it is that the majority of those are ill because there is no sanitary law calculated to prevent venereal diseases.

This is neither the time nor place to discuss whether those who suffer in consequence of their own acts merit the punishment. In my humble opinion, he or she who contracts any of the diseases pertaining to my specialty did so in yielding to the most powerful impulse of human or animal nature. Those who condemn arrogate to themselves greater wisdom than God possesses. It sounds very pretty to urge purity upon men—and some women.

Those who understand French would reply: "*C'est plus fort que moi.*"

Whether they should be condemned or not, is beyond the pale of the present discussion. The fact is, that they of whom we speak have acquired diseases which, if not treated, will incapacitate them for work. They will make them inmates of hospitals and thus charges upon the community, or, worse still, will make them progenitors of tainted issue to increase the ranks of paupers and criminals.

It would be sad if, knowing these things, we did not treat such patients anywhere and everywhere. We can not assist in averting national calamities presaged twenty centuries ago. Even then syphilis was spoken of as a disease which affected unto the third and fourth generations.

But, as you quite correctly hold, physicians must live; and the more money they earn, the more can they spend for the benefit of suffering humanity. It is equally true that no class of patients are less grateful than those who have fallen ill in consequence of giving loose rein to the genesic impulse.

Physicians would be more than human if they did not expect a slight increase upon the ordinary fee for such services. It is a curious fact that they are obliged to collect their fees in advance. If they fail therein they will be but rarely compensated in their work.

Equally so, it is not surprising that some dispensaries refuse to treat these cases.

But, despite the origin of these diseases, despite the notorious ungratefulness of these patients, despite the example set by the institutions mentioned, a study of these diseases and their consequences can not prevent one from sympathizing as keenly with those who suffer from them as with people who have acquired illnesses in any other manner.

But I must ask you to inquire more deeply into the question. Men go to the dispensary while earning seven dollars a week—say thirty dollars a month. Out of this they pay eight dollars rent a month; with the remaining twenty-two dollars they feed and clothe a wife and six children. If they take half a day off to seek help at a dispensary during the day they are likely to lose their situations. Is it not better that while such a man is ill he go to the dispensary in the evening rather than that eight people, because of his small ailment, become charges upon the community?

A boy earning three dollars a week, through his own fault or not, contracts urethritis. Can he pay from the earnings which he contributes, perhaps, to an invalid widowed mother's support?

Many laborers, male and female, must struggle in the carpet factories from early till late for the pittance to keep body and soul together. Shall we refuse to treat their varicose ulcers in the evening because they are earning a few paltry cents during the day? These examples could be multiplied interminably. You know their force.

But the fact remains that public and private charities are frightfully, shamelessly abused. Thought and study suggest to me a remedy which, though by no means perfect, may prevent much of this abuse.

It rests in organization. Let a dispensary society be formed. The incumbents of dispensary classes, about six hundred in New York, and their assistants, about twelve hundred in number, should contribute to its support. Let the chiefs of classes pay one dollar monthly to the society, and the assistants twenty-five cents monthly. This would give a monthly revenue to the society of one thousand dollars. From this fund let each dispensary be provided with a photographic camera and supplies sufficient to reproduce the features of each applicant who may reasonably be open to suspicion of having no claim on the dispensary's charity. It will be an easy matter to get such an applicant into a room set aside for photographic purposes and question him as to his name, residence, age, social condition, and everything else that may lead to his identification. All these facts may be entered upon printed blanks kept for that purpose. These, with the photographs attached, are given to inspectors paid out of the society's funds. They investigate at the residence given each case during the same day and indorse upon the blank what they ascertain. If the applicant is found not to be entitled to charity his picture is multiplied and the facts on the blank are reproduced in sufficient quantity to cover all the charitable institutions in the city, to each of which a photograph with information is confidentially sent the following morning. These then, knowing the facts, can act in concert with other dispensaries in protecting the worthy poor and the medical profession.

Thus have I crudely set before you a suggestion of a remedy for the dispensary evil. May it be the basis for a discussion which will lead to improvement of the idea or the establishment of a better plan.

MICROSCOPICAL REMINISCENCES.*

By PALMER C. COLE, A. M., M. D.

It was my good fortune to be a student of the Harvard Medical School when Oliver Wendell Holmes was professor of anatomy and physiology. Professor Holmes was an enthusiast in the use of the microscope, and possessed some of the finest of the Spencer lenses, then the best in the world. He had constructed a stand, principally of wood, stable enough to allow the use of high-power objectives, and so simple that any student with the slightest mechanical ability could make one for himself. My first stand I made on this model at a cost of about fifty cents for material.

The coarse adjustment was obtained by means of a pin in the tube carrying objective and eyepiece, which was pushed against a wedge-shaped piece of brass. The fine adjustment was obtained by revolving the pin against the wedge. Over the tube was slipped a cardboard disc, some six to eight inches in diameter, covered with black velvet, allowing both eyes to be kept open during observation. The tube was also lined with black velvet. The tube support revolved on a pivot allowing inclination, though we were taught to use it with direct light. In a recent letter to me, Oliver Wendell Holmes refers to this stand as "a rough wooden contrivance that answered its purpose." Later, Holmes's lecture-room microscope, for use in his own class, became very popular, and is still extensively used.

Notwithstanding his engagements with others in founding the *Atlantic Monthly*, his medical lectures five days a week, an occasional public lecture, and monthly installments in the *Atlantic* of that brilliant series of essays,

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* A portion of a paper read before the Northwestern Medical and Surgical Society, October 17, 1894.

The Autocrat of the Breakfast Table, he found time at his own house in Montgomery Place to give weekly instruction to half a dozen chosen students in the use of the microscope. In 1856 and 1857 I was fortunate enough to be one of the chosen half dozen. We were taught the use of the instrument and the preparation of slides. The slides used from week to week were prepared by Holmes himself to show the different tissues of the body.

The only consideration ever given for these charming and instructive lessons were the grateful thanks of his pupils.

I believe that Oliver Wendell Holmes was the first in America to teach classes of medical students the use of the microscope. If so, to him, and through him to the Harvard Medical School, should be accorded the honor.

Since writing the above Oliver Wendell Holmes has passed away. None knew him but to love him. His anatomical and physiological lectures were charming and always filled the amphitheatre; even dry bones in his hands became endowed with life and individuality.

It was my rare good fortune to be occasionally invited to his house, where I spent some delightful hours in his study and workroom. Once I was present when a large package of books arrived from New York for his inspection, which I helped him unpack.

When at the bottom of the case we came upon a large folio copy, original edition, of *Vesalius*, his eyes fairly sparkled with joy. Hastily he turned over the leaves and remarked that, as New Yorkers had been fools enough to allow such a prize to leave their city, it would never return from Boston.

All the world knew him as professor, author, and poet, but few knew his fondness for music, and that he possessed a rare mechanical genius of which he was very proud. He once told me he thought more of the "gimcracks" he made with his hands than of anything he had ever written; and at that time he was delighting two hemispheres with *The Autocrat of the Breakfast Table.*

In his last autograph letter to me he says: "My most successful contrivance was a *stereoscope* of a very simple pattern, which had a great run, and has remained popular, I think, to the present time."

The last time I was in Boston, a few years ago, I met Holmes by chance at the corner of Charles and Beacon Streets. After a short conversation he invited me to call on him that evening between seven and eight, an invitation I gladly accepted. Holmes was alone, and I passed one of the most delightful evenings of my life. Though I should have preferred to listen, I was obliged to keep up my share of the conversation. Though *The Autocrat* in print, he was anything but that in private. He had the rare power of drawing the best thoughts from those with whom he was conversing. I have seen him hold a circle of a dozen men in conversation, and such was his tact that every man went away thoroughly satisfied with himself and delighted with his host. For myself, I have never left his presence without feeling that I was better intellectually and morally for the association. About half-past nine my evening came to an end, as Holmes was obliged to leave to attend a large reception. It was the last time I ever saw him, and I love to think of him as he looked when he bade me good-by.

It has given me great pleasure to be able to add this simple tribute to the memory of Oliver Wendell Holmes.

One of the most genial, accomplished, and talented men America has ever produced has passed from our midst. Peace to his ashes.

When I commenced my medical studies the professional use of the microscope was principally confined to examination of the urine and tumors. To-day it would be difficult to tell in what disease it is not used as an assistance to a correct diagnosis, or to detect the insidious invasion of some complication.

With the brilliant demonstration by Pasteur that there was no spontaneous generation, but that all the lowest forms of life arose from living germs with which the atmosphere was crowded, and when those germs were excluded all remained sterile—his discovery of the phylloxera, his discovery of the bacilli of anthrax, and the means of rendering cattle immune—a new field was opened.

Lister, with rare sagacity, applied these investigations to the treatment of wounds, and antiseptic surgery was born, with what benefit to humanity you all know.

Koch and his school started investigating the microbic causes of disease, followed by European and American investigators, and bacteriological studies, still in their infancy, have become indispensable.

In many of our hospitals, and with some private practitioners, it has become a routine duty to examine the urine and sputa of all patients.

The vomitus and dejecta are both examined; all the secretions—even external. To the dermatologist the microscope is indispensable.

In pernicious anæmia we count with care the comparative number of the red and white corpuscles, and obtain a certain knowledge of the effect of our treatment.

In suspected cases of malarial complication we examine the blood anxiously for the malarial bacillus, or those queer Brownian bodies sometimes found in the red corpuscles.

The specific germs of a large number of diseases have been determined.

Unfortunately, this knowledge has been so far but of little use in the treatment of many diseases. The great vitality of the germs, their almost incredible powers of increase, have set at naught our boasted science.

Nevertheless, we can point with pride to what we have already achieved. The discovery of the tubercle bacilli as the cause of consumption has already saved a large number of lives. It has caused us to take prophylactic measures of great value, and, in spite of the lamentable failure of Koch's lymph, measures already inaugurated will save innumerable lives in the future.

If we may believe the reports from India, the mortality from cholera has been greatly reduced, with the prospect that, working on the same lines, inoculation with attenuated virus, a prophylactic or specific to the disease may yet be found.

In diphtheria, that most dreaded and fatal of infantile diseases, we have in the antitoxine solution of Dr. Roux, of

Paris, a student of and colaborer with Pasteur, a prophylactic, and after the disease has been contracted almost a specific if used in the earliest stages.

In the Trousseau Hospital at Paris, where the antitoxine, or, more properly speaking, the antidiphtheritic serum, has been given a fair trial, the mortality has fallen from sixty-three to twenty-four per cent., though many of the patients were brought in in the advanced stage of the disease. In the hospital of the Enfants malades, under the personal supervision of Dr. Roux, the mortality has fallen to eleven per cent. In hospitals where the old treatment was followed we have the old results—a mortality of from fifty to seventy per cent.

The number of cases so far reported is conclusive as to the great value of this remedy.

Unfortunately, it is expensive. Our board of health have applied for a small appropriation to enable them to produce it for the use of the poor. This appropriation should be granted immediately. It should be increased tenfold to enable every practitioner in New York to obtain a supply at cost price.

The solution is stable and can be kept for a year without losing its efficiency. The serum dried in vacuum is also stable and readily transmitted by mail.

Encouraged by past achievements I see no reason to doubt that in the near future we shall discover a prophylactic or specific for at least all contagious diseases.

Prophylaxis rather than cure has been as yet the result achieved, and, after all, the old adage holds true, "An ounce of prevention is worth a pound of cure."

While these great advancements were taking place, methods of investigation changed. Freehand sectioning and teazing tissues with needles gave way to the use of the modern microtome, by means of which we can obtain uniform sections of any desired thickness, and, if we wish, mount a whole specimen in serial sections.

Chemistry was called in to render its aid; various staining media were used for the purpose of differentiation of tissues and determining the species of bacilli and micrococci. To enumerate the different processes would require a small volume.

While histologist and bacteriologist were making such marvelous advances, opticians were not idle. Through their efforts have scientists been furnished with lenses fitted for their use.

Spurred on by rivalry and the demands of amateurs for wider angles to resolve the difficult lines and finally the dots or so-called pearls of the diatoms, each maker succeeded in improving his lenses. As the demand increased, so did the number of manufacturing opticians.

The brothers Grunow, then, in New Haven, Conn., afterward of New York, made stands and objectives especially designed for physicians and admirably adapted for their use.

Alvan Clark began life as a gun-maker; made the old fashioned target rifles, dear to the hearts of the sportsmen of the time; took them to target and turkey shoots, proved their superiority, and sold them. Becoming dissatisfied with this business, he abandoned it, and turned his attention to portrait painting, in which he was making a great reputation as an artist when he wanted a microscope and made one for his own use. After this he abandoned portrait-painting and turned his attention to the construction of telescope lenses. Owing to this happy diversion of his genius America has the honor of having produced the largest and most perfect lenses for astronomical purposes the world has ever seen.

Had the bent of his genius turned to microscopy instead of astronomy we can only conjecture what the result might have been, for his first and only objective, a quarter inch, gave excellent results on the pygidium of the flea and scales of insects.

I had the pleasure of using this microscope in the late Alvan Clark's house in Cambridge.

Alvan Clark was forty years old when he ground his first lens. Many a night have I spent with him in the rear basement or cellar of his house when he was engaged in grinding and polishing large telescopic objectives.

The trunk of a tree deeply imbedded in the earth passed through a hole in the floor and supported the "tool" in which the lens was ground. Here, seated on a triangular footstool, he passed days, weeks, and months in solitary and arduous labor. It was necessary to keep both glass and tool moistened with water while working. When the time came for the final polishing and shaping of the lens, to rectify by the most delicate manipulation the slightest defect in curvature, the work could only be done on a clear starlight night, when from time to time the lens was taken out into the open air, placed in its supports, and tested time and time and time again, until its resolution was as perfect as human skill could accomplish.

Then came my reward, as Clark was pleased to show me some of the most wonderful things in the heavens—double and triple stars—and never since have I had the pleasure of looking through a first-class telescope.

From Alvan Clark I received my first instructions in grinding and polishing glass.

Robert Tolles, who had been with Spencer, left his workshop and established himself in Boston.

The battle between low and wide angles was on. Most histologists were satisfied with low angular aperture, saying that it gave them greater penetration. Students of diatoms demanded the widest obtainable angle, as by wide-angled objectives only were they enabled to resolve the beautiful lines on the frustules of diatoms, which were their favorite study.

I have in my possession a fine one-fifth-inch made by William Wales, of Fort Lee, New Jersey, which has two back systems of lenses, interchangeable, one to give low, the other high angle. The objective was an expensive one, the idea patented, but no optician would make such an objective to-day.

The discussion is happily ended. To-day histologists and bacteriologists use the widest-angled lenses they can obtain. By their aid only has the science of bacteriology been enabled to make such giant strides.

First, dry lenses only were made; then came water and glycerin immersion, then oil and homogeneous objectives.

To America is due the credit of this last great advance, for the first homogeneous immersion objective was made by Robert Tolles, of Boston, for the United States Army Medical Museum, Washington, D. C. It was used by Dr. Woodward, United States Army; the immersion fluid, Canada balsam. The objective is the property of the United States Government.

With wider angles more light was required, and we were supplied with achromatic condensers, and later with wide-angled condensers which admitted of the use of immersion fluids.

There was but one more step to be taken, and the liberality of the German Government supplied the means for investigation which enabled Abbé and Zeiss to give us the apochromatic.

The last production of Zeiss, with the enormous N. A. of 1·63, has in the opinion of Dr. Henry van Heurck reached the limit of possibility.

The great primary cost of this objective, and the skill requisite to use it, place it beyond the reach of most.

The objective costs three hundred and twenty dollars, it is difficult to handle, and requires, to show all its capabilities, flint-glass slips costing eighty cents, flint-glass cover glasses costing forty cents, both easily broken; a condenser with flint-glass front, all of at least 1·6 refractive index. The object, condenser, and objective all to be immersed in media of not less than 1·6 refractive index. In addition to this we require special compensation oculars.

After going to this great expense what is the final result? We have an objective partly composed of fluor spar and not stable in our climate. As a result we have what is known as "disease of the lenses"; the definition becomes obscure, and the objective has to be sent back to the maker, who after a short time returns it as good as new and without charge. These remarks apply to all objectives in which fluor spar is used.

I do not think it worth while to send to Europe for our objectives when we can purchase them of American manufacture equal to those of Zeiss.

This is a strong statement, but I am justified in making it.

Spencer's Sons have always kept up the reputation of their father. There may be other firms who produce equally good work, but I am not equally familiar with their products.

I know that with a Spencer one tenth homogeneous immersion N. A. 1·38, belonging to my friend Mr. Henry Benett, I have resolved the dots in *Amphipleura pellucida* as clearly and distinctly as those shown by Dr. Henry van Heurck in *The Microscope* as the result of photographing the frustule with Zeiss's two-millimetre objective N. A. 1·63.

This result was achieved under the following conditions, which, by measurement, increased the N. A. of the objective from 1·38 to 1·52:

The objective was made with wide collar correction for use with a ten-inch tube, the English and American standard. By Dr. Henry G. Piffard's suggestion, the tube was shortened to the continental standard—six inches—the systems closed, monobromide of naphthaline used as immersion fluid for both objective and condenser, and a slide of *Amphipleura pellucida*, which I had mounted especially in media of nearly 2·5 refractive index, placed in position on the stage. The result was simply wonderful. The beads stood out as distinctly as those of *Pleurosigma angulatum* under a good immersion objective.

The same slide, under similar conditions, was afterward shown by Dr. Piffard to Spencer himself and Dr. Curtis, president of the American Microscopical Society. Both were delighted, and said they had never before seen such perfect resolution of the diatom.

I think Spencer's lenses, for all practical purposes, equal to Zeiss's; while, having no fluor spar in their composition, they are not subject to disease. No special slides, cover glass, condenser, or eyepieces are required.

English authors have never given due credit to the genius of the elder Spencer. Carpenter, *On the Microscope*, in one of his earlier editions, refers to him in a footnote (I quote from memory) in these terms: "A young man in Canastota, N. Y., has made some very fair lenses."

At this very time Spencer's objectives had been sent to England, tested with the production of their best makers, and easily proved superior. This injustice Carpenter has never corrected, and it has remained to Dr. Henry van Heurck, in his recent work on *The Microscope*, to render him full meed of praise. He says, page 218, English edition, 1893:

"The firm of Spencer has been renowned for some time. The first information which we have about this house dates from 1848; at that time this optician's objectives were noted as *surpassing* those made in Europe. Shortly after, in 1852, Spencer manufactured a one-twelfth-inch objective having 174·5°, the *first* having so large an angle of aperture.

"The firm of Spencer has always maintained its old reputation. Their objectives deserve all praise."

These grateful words come from probably the greatest living authority on the subject.

However, it is well to bear in mind that it is the brain behind the instrument, and not the instrument itself, that gives the result. Our opticians furnish us with instruments equal to all demands. It is to be hoped that some of our multiple millionaires will soon give some of their millions to found a permanent fund which will enable some of our most gifted students to devote their lives to original scientific investigations.

254 West Forty-second Street.

BRIEF STUDIES IN
TUBERCULOSIS AMONG THE INSANE.

By E. D. BONDURANT, M.D.,
ASSISTANT SUPERINTENDENT OF THE ALABAMA INSANE HOSPITAL, TUSCALOOSA

During three years and nine months, beginning October 1, 1890, two hundred and ninety-five deaths occurred among the seventeen hundred patients treated at the Alabama Insane Hospital. Of the hundred and seventy-nine deaths among white patients, fifty-one—twenty-eight per cent.—were due to tuberculosis; of a hundred and sixteen deaths among negro patients, forty-nine—forty-two per cent.—were due to tuberculosis.

A post-mortem examination was made in a hundred and sixty-three of these two hundred and ninety-five fatal cases —ninety-one white, seventy-two colored.

Indications of either healed, arrested, or still active and advancing tubercular disease were found in ninety-one instances—fifty white, forty-one colored.

No signs of tuberculosis, past or present, were discovered in seventy-two cases—forty-one white, thirty-one colored.

That is, fifty-five per cent. of the white patients and fifty-seven per cent. of the colored patients coming to the autopsy table exhibited the lesions of either a still active or a formerly existent tuberculosis.

Turning to the ninety-one tubercular cases, it is found that general miliary tuberculosis, *i. e.*, tubercular nodules or larger masses in all or nearly all of the internal organs, existed in nineteen cases—four white, fifteen colored. Of these, three cases, all colored, could clinically be classed as "acute miliary tuberculosis."

The tubercular disease involved the lungs, lymph glands, and intestinal tract only (that is, if there were tubercular foci in liver, kidneys, spleen, etc., they were too small to be visible to the naked eye) in twenty-nine cases—sixteen white, thirteen colored.

The disease was confined to the lungs and bronchial lymph nodes in twenty-two cases—eleven white, eleven colored. In several of these cases death occurred from other causes.

The lesion consisted of a few small cheesy nodules in the lungs in five cases, all white.

Scars, chalky masses, fibrous bands, etc., indicating complete arrest or cure of a former tuberculosis, were found in sixteen cases—fourteen white, two colored.

The facts above brought forward are of some interest from their bearing upon two points in the pathology of tuberculosis—the comparative susceptibility of the white and colored races to tuberculosis, and the frequency of recovery from the disease.

A. *The Comparative Susceptibility of the White and Colored Races to Tuberculosis.*—It is generally believed throughout the Southern States that the negro is more liable to tubercular disease than is the white man. The statistics of this hospital tend to show the correctness of this view; some twenty-five to thirty per cent. of the deaths among white patients are from tuberculosis; forty to forty-five per cent. of the deaths among the negro patients are due to the same cause. In addition to this, a study of our clinical records discovers the fact that in the colored race the disease assumes a much more active and rapidly progressive form, the average duration of fatal cases being markedly shorter in the negro. Very chronic forms of tuberculosis are rare among the negro patients, while the general miliary form is strikingly common. The reverse is true of tuberculosis in the white race. There are now in the hospital several white patients, known to have had the disease for years, in whom the malady is at a complete standstill, patients in tolerable bodily state and not emaciating; one of these has had the disease surely for ten years and probably longer; the physical symptoms were well marked eight years since, and the case at that time was regarded as one of chronic phthisis. The *Bacillus tuberculosis* was found in the sputum seven years ago. There are still evidences of consolidation and small cavities in both lungs, but the patient has not lost in weight—weighs, in fact, a little more than she did five years ago, although during this time she sustained a fracture of the femur, making a fair recovery therefrom. There are also among the white patients now in the hospital possibly a half dozen or more in whom the disease has been to all intents and purposes cured.

Such cases as these, as above remarked, are of extremely rare occurrence among the negroes; there have been few cases in which the malady has existed for two years before death, and two only (in four years) in which entire arrest of the disease has been obtained.

The post-mortem findings, given in brief synopsis above, are especially interesting and significant as roughly outlining the comparative power of resistance of the two races *to the spread of the infection.* Reference to the figures will show that while the negro is but little more apt to contract the disease, a much smaller percentage of them recovered; to be specific, at fifty autopsies upon tubercular white patients the disease is found to be entirely healed or latent in nineteen, while in forty-one autopsies upon tuberculous colored patients healing or arrest is met with in two instances only. Several of these forty-one cases, however, had died primarily from some other cause than tuberculosis. Furthermore, in these fifty autopsies upon tubercular white patients, general miliary tuberculosis is found four times only, while among forty-one negroes fifteen show a general infection.

It is also worthy of note that during the four years embraced in this report the only two patients dying from excessive pulmonary hæmorrhage in course of tuberculosis of the lungs were colored women; the only three cases of marked tubercular disease of the larynx occurred among the negro patients; the only case of tubercular meningitis was a colored man; the only instance of tubercular disease of the suprarenal bodies occurred in a colored woman.

It is then evident, in so far as conclusions from a comparatively small number of cases are warranted, that:

The mortality from tuberculosis is greater among the negro races than among the white.

The disease runs a more rapid course in the negro.

Cases of cure or arrest of the disease are comparatively infrequent in the negro.

The disease becomes much more widely diffused throughout the bodily tissues and organs in the negro, more than a third of the fatal cases showing a general infection.

B. *Frequency of Recovery from Pulmonary Tuberculosis.*—The time when tuberculosis of the lungs was regarded as a necessarily fatal disease has long since passed, and the trend of opinion, based upon careful clinical study as well as upon the results of post-mortem examinations, is toward a more favorable view of the possibilities of cure. Our results at the hospital, as will be seen by reference to the condensed statement above given, would seem to justify the belief that pulmonary phthisis is by no means so hopelessly fatal a malady as it was once held to be. From its clinical side we see not a few cases offering undoubted evidences of a commencing tubercular process in the lungs, in which entire recovery is obtained; other cases in which the disease, while not removed—*i. e.*, physical signs persist—undergoes arrest and is held in abeyance for years. The patient previously referred to as having had the disease for ten years is a good case in point. Another tubercular patient, white female, has during the past twelve months had an apparently complete arrest of a quite serious tubercular process of long standing, and has gained in weight from eighty-two pounds eight months ago to a hundred and three pounds at the present time. One of the two negro patients referred to incidentally above presents an equally good example of arrest or remission. This patient was attacked with tuberculosis in December, 1892; the *Bacillus tuberculosis* was present in the sputum, emaciation was progressive, and the patient by midwinter was confined to bed. Shortly after this time the disease came to a standstill, remained so for a short time, then began to subside; all symptoms of active tuberculosis vanished, and in the succeeding twelve months the patient gained nearly fifty pounds in weight and became able to engage in quite laborious manual labor. The case has since been discharged from the hospital and has passed out of notice. Before we had the opportunity of verifying the matter by autopsies we were inclined, in cases in which the *Bacillus tuberculosis* could not be detected in the sputum, to doubt the correctness of the diagnosis in cases in which every vestige of evidence of tuberculosis disappeared; but a review of the autopsy records brings to light a number of instances of healing of a tubercular process. Note in the statement above made: In a hundred and sixty-three autopsies, sixteen cases of probable cure of a former tuberculosis are shown.

Briefly stated, these sixteen cases were as follows:

Case I.—White female, aged twenty-seven; died of maniacal exhaustion a few months after admission to the hospital. No symptoms of tuberculosis during her term of residence.

Post-mortem examination discovered at apex of left lung, lying just beneath the pleura, a cluster of hard calcareous nodules, the entire group not more than a quarter of an inch in diameter, and surrounded by a firm fibrous capsule; some pleuritic adhesions, old and firm.

Case II.—White man; died of senility and marasmus at seventy-two years. Demented and in hospital many years. No history of tubercular symptoms.

Autopsy discovered in center of upper lobe of left lung a pea-sized chalky mass inclosed in a fibrous capsule. At apex of same lung indurated areas and firm pleuritic adhesions.

Case III.—White woman, aged fifty years; epileptic; had a kidney lesion, and died in uræmic stupor. Five years before her death she had a suspicious cough with occasional slight rises of temperature, and for nearly or quite two years was in feeble health and regarded as in an early stage of a pulmonary tuberculosis, although the *Bacillus tuberculosis* was not detected in the sputum. She afterward improved and gained in weight, cough disappearing; during the three years preceding her death no tubercular manifestations were noted.

Autopsy.—At apex of each lung are found firm adhesions of the pleura, indented scars, and in the underlying lung substance several patches and bands of firm fibrous tissue.

Case IV.—White man, aged thirty-eight years; died of paretic dementia. No pulmonary symptoms recorded.

Autopsy.—At apex of each lung fibrous scars, pleuritic adhesions, and in the underlying lung tissue, near the surface, three or four millet-seedlike calcareous masses.

Case V.—White man, died at seventy years, of arterial disease and general marasmus. No record of pulmonary symptoms.

Autopsy.—At apex of right lung firm pleuritic adhesions, fibrous bands and patches, the latter containing in the center a small mass of cheesy, chalky material.

Case VI.—White man, aged forty years; epileptic, and died in stupor. No history of any lung complication.

Autopsy.—At apex of left lung a deep scar and indurated patch, with firm pleuritic adhesions.

Case VII.—White woman, aged forty-two years; died of Bright's disease and exhaustion of excitement twelve months after admission, having exhibited no symptoms of tuberculosis during this time.

Autopsy showed firm pleuritic adhesions at apex of left lung, with patches of induration and anthracosis; in the lung immediately beneath this point there were several small semi-solid cheesy nodules surrounded by a wall of white fibrous tissue. In the lower lobe of this lung, near its posterior surface, a small eighth-inch-in-diameter cavity having dense white fibrous walls inclosing a little dry, granular material was discovered.

Case VIII.—White woman, aged sixty-four years, died of arterio-sclerotic nephritis with a heart complication. No indications of tuberculosis during the three months she remained a patient.

Post-mortem examination discovered at apex of left lung old, dense pleuritic adhesions; immediately beneath the pleura, in the lung tissue, a single pea-sized, cheesy lump inclosed in a thick ring of fibrous tissue, this latter surrounded by an anthracotic zone.

Case IX.—Negro woman, thirty-seven years old, died of nephritis. No tubercular symptoms recorded.

Autopsy.—Left lung at apex presents pleuritic adhesions, fibrous scars, and in tissue beneath two small cheesy masses with a wall of induration and anthracosis.

Case X.—Negro man, died at fifty-five years of age, of uræmia. No history of a probable tuberculosis.

Autopsy.—At apex of right lung old pleuritic adhesions, a deep indurated scar, and radiating from this several fibrous bands.

Case XI.—White woman, twenty-six years old, died of peritonitis, having given no indications of tubercular disease of the lungs during the seven months she was a patient of the hospital.

Autopsy discovered at apex of left lung firm pleuritic adhesions, indentations, and in lung tissue beneath the pleura several white bands and anthracosed areas; also five small granular and calcareous millet-seedlike nodules incased in a wall of fibrous tissue.

Case XII.—Man, white, aged forty-two years; died of cerebral hæmorrhage. No symptoms of tuberculosis recorded.

Post-mortem examination revealed at apex of right lung adhesions of the pleura; a deep, indented fibrous scar; in underlying lung substance, fibrous patches with little gritty masses in their centers.

Case XIII.—Woman, white, fifty years old; died of peritonitis after a residence in hospital of fifteen years. During the last ten years of this time she exhibited at intervals many of the symptoms of pulmonary tuberculosis—cough, rises of temperature, one hæmorrhage—and repeated examinations of chest were made; at one time it is noted that there is dullness on percussion over apices of both lungs, with expiratory roughness and many râles. After fluctuating somewhat during several years, the tubercular symptoms slowly disappeared, and the patient, as above mentioned, finally died of exhaustion following a pelvic peritonitis.

Autopsy.—At apex of each lung there are pleuritic adhesions, masses of fibrous tissue, chalky masses, gritty, sandlike patches incased in fibrous tissue, zones of anthracosis, etc. The entire mass was not so much as one inch in diameter in either lung. No active tubercular process anywhere discovered.

Case XIV.—White woman, in hospital twenty-three years, dying of senility and arterio-sclerotic nephritis at seventy-one years of age. It was noted in her clinical history in August, 1889, that she "presents every indication of phthisis pulmonalis"; she then had cough, fever, and three hæmorrhages. Subsequent history is defective. In the autumn of 1891 a careful physical examination failed to discover any signs of tuberculosis, and she died two years later without a return of the pulmonary symptoms.

Autopsy.—At apex of each lung pleuritic adhesions, scars on the pleural surface, and underneath several bands of fibrous tissue and small yellowish chalklike masses.

Case XV.—White female, died of old age and marasmus at sixty-eight years, after twenty years' residence in hospital. Six years before death she showed some tubercular symptoms, and during several years was regarded as suffering from pulmonary phthisis; she had dullness on percussion over both apices, with râles in same area; irregular rises of temperature, cough, scanty expectoration, etc. She unexpectedly began improving after this, fever and cough disappeared, and she gained twenty pounds in weight. She died three years later, having had no return of the tubercular symptoms.

Autopsy.—At apex of each lung, extensive and firm pleuritic adhesions, deep scars; in lung tissue, numerous small fibrous bands at apex interspersed between chalky masses, some yellow, some white, friable, the entire mass being enveloped in a thin fibrous wall. In the lower lobe of right lung, near the center, a small cluster of cheesy nodules surrounded by a wall of anthracotic tissue was discovered.

Case XVI.—Man, white, died at forty-seven years of age, of valvular heart disease. Had given some indefinite symptoms of tuberculosis.

Autopsy.—At right apex, adhesions and indentations; at left apex, adhesions, and in lung tissue, just beneath the pleura, chalky and cheesy masses enveloped in fibrous walls.

The pathological changes shown in the above-mentioned cases are those usually interpreted as the after-marks of healed tubercular lesions. There was recorded clinical evidence of tuberculosis in four of the cases only; in the remainder the attacks of tuberculosis may have occurred before the admission of the patients to this hospital, or the symptoms were so slight or non-characteristic as to attract no attention.

Our figures show, then, that of one hundred and sixty-three cases coming to autopsy, ninety-one, or fifty-six per cent., had at some time suffered from tuberculosis; of these ninety-one cases, sixteen recovered entirely; in five more the disease had been arrested and was making no progress whatever at the time of death from other causes than tuberculosis; and in nine other cases the disease was confined to small circumscribed areas in the lungs or other organs, pursued a very chronic course, and was not the direct cause of death. In other words, while more than half of the patients in the insane hospital at some time suffer from tuberculosis, one third of those who contract the disease make a good stand against it, either entirely recovering, or living for a term of years without being injuriously affected by small though unhealed foci of tuberculosis, or dying from some other cause in the course of a very mild and chronic form of the disease.

NECROSIS OF THE LABYRINTH.*

REPORT OF A CASE.

Opening of the Mastoid Process, Küster's Operation.
Finally, Spontaneous Elimination of a Portion of the Labyrinth.

By HARRY FRIEDENWALD, A. B., M. D.,
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COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE.

Chronic suppurative inflammation of the middle ear may invade the surrounding structures and cavities and produce serious complications. At the annual meeting of this faculty a few years ago I had the honor of reporting a number of cases in which the principal secondary affections were inflammation of the mastoid process and septic intracranial complications (meningitis, thrombosis of the lateral sinus).

To-day I wish to describe an interesting case in which the mastoid process and especially the osseous internal ear were secondarily involved.

Mary H., aged four years, came under my treatment in October, 1890, suffering with chronic suppurative otitis media of the left ear.

Previous History.—Sixteen months ago had scarlatina, with severe scarlatinal diphtheria and symptoms of meningitis. She was very ill for about two weeks, then recovered entirely excepting a purulent discharge from both ears. This was treated with injections and boric acid, and the right ear rapidly recovered and has since then been entirely well. But the discharge from the left ear continued in spite of treatment. A few weeks before the case came under my observation a small piece of bone had escaped with the discharge.

Present State.—Auditory canal filled with offensive pus. A large polypus hangs from above, near the inner end of the canal, obscuring the deeper parts. The ear was thoroughly cleaned and a crescent-shaped piece of bone, on which the sulcus for the insertion of the drumhead could be distinctly recognized, was extracted. The polypus was removed with a snare. On the following day (November 1, 1890) the patient had a chill and high fever (103·6°). The fever continued for several days and the discharge was lessened, indicating retention of pus. The patient at times suffered great pain in the head.

November 6, 1890.—A consultation was held with Dr. Gombel, the family physician, and the child was again accurately examined. The patient was weak and pale (the lungs, liver, spleen, and throat were normal). There had been no other chill, but the fever was still high (temperature 102·4°, pulse 148). The child was very somnolent and the headache at times was very great; but there were no other symptoms of cerebral complications (such as rigidity of neck, twitchings of peripheral muscles, sensitiveness of jugular vein, jaundice; the optic discs were normal). The discharge from the ear had again increased and it was occasionally bloody. The external ear was not sensitive, nor was the region of the mastoid process or the skull near the ear. The symptoms were therefore referred to retention of pus in the temporal bone, probably deep in the mastoid process, and cerebral complications were excluded. Having tried internal medication for almost a week without any improvement, we determined to open the mastoid.

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* Read before the Medical and Chirurgical Faculty of Maryland at its semi-annual meeting, held at Cumberland, November, 1894.

On the following day, November 7, 1890, this operation was performed under chloroform in the usual manner. We were rewarded by finding a deep-seated abscess in the mastoid process, which was scraped and cleaned. The patient rapidly recovered from the operation, but our expectation that complete recovery from the aural inflammation would result was not realized. The wound closed rapidly,* but the otorrhœa continued, though diminished in quantity, and the polypus returned. It was repeatedly removed with the snare, the curette, chromic acid, and with absolute alcohol. Whenever removed we could probe a carious cavity through a fistulous canal which had an opening about three quarters of a millimetre in diameter in the upper and deeper part of the osseous portion of the auditory canal. The purulent discharge remained about the same, but was kept inoffensive most of the time by frequent irrigation and boric acid. Fearing that the carious process might extend, we determined to scrape out the cavity through the fistulous canal.

This operation was performed under chloroform May 3, 1891, but it proved ineffectual, and the polypus returned within two weeks. The former treatment was resumed. The patient's condition remained about the same for many months. Toward the beginning of the following year (1892) there were frequent attacks, during which the ear would become sensitive and painful; the patient would be restless and would sleep badly. There was frequently slight fever without chills. During these attacks the discharge would diminish in quantity.

The recurrence of these attacks induced us to make another attempt to reach the source of the disease. In April, 1892, an operation was performed according to Küster,† consisting in the partial removal of the upper and posterior wall of the auditory canal with the chisel, after having laid the auricle forward by an incision along its posterior attachment. We soon entered the carious cavity, and this was scraped out as thoroughly as possible with a sharp spoon. No sequestrum was found. The cavity was packed and the patient again recovered rapidly, but again we were disappointed, for the otorrhœa recurred. We therefore gave up all hope of relieving the deep-seated caries by surgical means, and restricted the treatment to removing the polypus with the curette when it would become large, and to daily irrigations and instillations of a saturated solution of boric acid or insufflation of the powder. The discharge was not considerable in amount and was kept free from odor. We were finally rewarded for our patience, for in May of this year (1894) a sequestrum found its way into the auditory canal and was removed. The fistula closed and since then there has been no discharge whatever. The canal ends in a membrane occupying the position of the drumhead, but showing no landmarks, indicating that the ossicles have been lost and that the drumhead has probably been replaced by a cicatricial membrane.

Many careful experiments have been made to determine whether there is any remnant of the function of hearing. These are very difficult and the results are doubtful in a child—now only eight years of age—but it appears certain that the hearing of this ear is entirely lost.

The sequestrum is small and is distinctly a part of a semicircular canal. It is crescentic in form, much thicker at one end than at the other, and its surface is very rough. On one side we find the canal mentioned above, of whose wall about a half is preserved. The sequestrum is seven millimetres long, two and a half wide, and about three thick.

Remarks.—Our patient at no time suffered from vertigo. This symptom, it is true, has not been frequently observed in such cases, as was shown by Bezold in his comprehensive study of this subject.* When due to involvement of the semicircular canals, it is observed during the earliest period of invasion of the labyrinth. When this occurred in our case it is not difficult to surmise. It was probably soon after the onset of the attack of scarlet fever when symptoms which were referred to a meningitis appeared. These symptoms were in all probability due to acute suppurative inflammation of the labyrinth.

The origin of the labyrinthine affection deserves to be considered. Did it arise as a complication of suppurative inflammation of the middle ear, as was assumed at the beginning of this paper, or was it a primary affection? The former is much the more probable. There are a few cases on record in which the affection was probably primary in the labyrinth, but they are very few, and are not absolutely proved (cases of Christinneck, Trautmann, Toeplitz, and Kretschmann). The vast majority are secondary to the affection of the middle ear. Thus, in Bezold's list of forty-six cases there is but one which is probably primary.

We should also mention that there was never any facial paralysis, a very common symptom of necrosis of the labyrinth. One important feature of this case is the long course during which every possible attempt was made to relieve the sequestrum, but without success. To the patient cleansing, to keeping the fistulous canal free, and to the antiseptic treatment carried on without interruption for three years and a half, we may, in part at least, ascribe the final happy result.

922 Madison Avenue.

Reflex Spasm of the Tongue, Lips, and Pharynx induced by Irritation of the Great Occipital Nerve.—Gallerani and Pacinotti (*Neurol. Ctrlbl.*, 1893, No. 14; *Ctrlbl. f. d. med. Wiss.*, 1894, No. 19, p. 335) have reported the case of a man who had been struck upon the head twelve years previously. The site of injury was from time to time the seat of pain, both spontaneous and induced. In the stellate cicatrix a small, round, hard body could be felt, pressure upon which induced pain. There was present contracture of the muscles of the left side of the neck, so that the head was held downward and directed to the left, and there was also disturbance of speech, contraction of the lips, slight trismus, and some difficulty in swallowing. This spasmodic condition was a result of irritation induced by the presence of the foreign body, and disappeared after excision of the cicatrix at the point of union of the great and small occipital nerves.—*Medical News.*

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* The iodoform gauze which was used to pack the wound produced eczema of the surrounding skin. Subsequent experience showed that the patient had this idiosyncrasy toward iodoform, and suffered with eczema whenever this medicament was applied.

† See *Deutsche med. Wochensch.*, 1889, Nos. 12 and 13.

* *Arch. of Otology*, vol. xvi, p. 297.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. APPLETON & Co.
Edited by FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, FEBRUARY 23, 1895.

PROMPT AID TO THE INJURED.

IN the *Progrès médical* for January 26th there is an editorial article by M. Marcel Baudouin in which he deals especially with the question of first aid to the injured. The discoveries, he says, which have revolutionized modern surgery are, at the present time, according to operators, three in number, and they may be classified as follows: 1. Anæsthesia. 2. Temporary hæmostasis. 3. Antisepsis and asepsis. Two of these discoveries, says the writer, are of unquestionable importance, and it may be said that without them the majority of large operations would never have taken place. But it must be added also that the latter, antisepsis, which by far holds the first place, would not have been able to have free scope if the Americans had not suspected close on to fifty years ago all that can be attributed to nitrogen protoxide and to ether as general anæsthetics.

Our estimate of temporary hæmostasis as one of the wheels of progress during the past fifty years appears to the writer to be higher than is just. A well-known instrument-maker, says M. Baudouin, had recently gone so far as to call it pure exaggeration. However, this was modesty on his part, for he had played a certain part in the matter of forceps. But M. Baudouin adds that he does not agree with the instrument-maker. Without the means at our disposal at the present time for this temporary hæmostasis, he says, many operations, particularly those that are directed against abdominal affections, would be impossible, and in any case would not bring success. The writer speaks of it intentionally as temporary hæmostasis, for that only is important; the question of definitive hæmostasis, which, for that matter, was determined long ago, indeed, before this century, does not present so many difficulties to surmount.

To these three discoveries, the real importance of which is admitted by the majority of surgeons, M. Baudouin ventures to add another. He does this with the less hesitation, he says, since he is neither its father nor its sponsor. He has reference to the hospital ambulance service of New York, which he characterizes as an extension of Baron Larrey's flying ambulance service to meet the wants of the ordinary citizen. He thinks that immediate surgical aid to the injured is one of the most important boons that have been introduced into surgery during recent years, ranking with antisepsis. It is one of the principal factors of success in operative surgery, other things being equal, and it should at once be put on a par with the three discoveries that he mentioned at the outset. From a purely surgical point of view it is even more valuable than the suppression of pain, anæsthesia. This is easy to understand, he says, but it will be more difficult to make the wounded person comprehend that he should endure even the smallest intervention.

This theoretical idea is due entirely, in so far as concerns its scientific and rational application, to the practical sense which is so remarkable in Americans. It is time, says M. Baudouin, to organize in all the great industrial centers of Europe a service of prompt surgical aid to the injured, and to establish ambulances of great speed, for they are indispensable to such a service, if surgery is expected to make notable progress in the future. The writer urges this point because he believes that an entirely new organization must be instituted independent of that of former years. If we are stingy in these matters, he says, the end will not be attained. It is much better not to attempt anything than to compromise the principle by insufficient experiments, and especially to undertake an expenditure which will not bring any appreciable result. M. Baudouin speaks of M. Eloy as having, in the *Journal des praticiens* for January 19th, drawn the attention of the medical profession to such efforts, and for this, he says, he is very grateful to him. The negligence and the obstinate ignorance of the public ministers, says M. Eloy, are astounding. We who know, says M. Baudouin, how much the Municipal Council of Paris has it at heart to overcome this difficulty, are persuaded that the solution so long expected will not be delayed, and that we may soon commend the active and prudent councillor who shall arise as the promoter of this great and generous work.

THE MEDICAL SERVICE OF THE NEW YORK STATE MILITIA.

SURGEON-GENERAL BRYANT'S final report, dated December 1, 1894, a pamphlet of forty-eight pages, brings out very clearly, but with the utmost modesty, the great service that he and the medical officers serving under him have rendered to the State. It reviews the affairs of the medical corps during the ten years ending with the close of last year. Nobody who is in a position to compare the corps's present dignity and efficiency, the respect paid to it by the line officers, with its condition at the beginning of Dr. Bryant's term of office can fail to see how notably it has advanced. Among the salient causes of this advance, as we learn from the report, are the emancipation of regimental medical officers from dependence on commanding officers' personal preferences in the matters of their appointment, retention, and treatment; the experience gained by actual service annually in camp; the successful establishment and proved value of the hospital corps, which was for some time strenuously opposed by many of the very line officers who are now proud of it; the provisions for the physical examination of recruits; and the furnishing of the various regiments with an approach to adequate appliances for the care of the sick and wounded, whether in the commands or among civilians in times of unusual turmoil or calamity. Dr. Bryant recommends the purchase of four ambulances, one for each brigade.

The report has the touching quality of a farewell address, especially in the peroration, as follows: "The medical officers of the entire service have been uniformly considerate and courteous on all occasions. Each has labored in his own way most faithfully to maintain the dignity and increase the standard of the professional excellence of the service. To whatever the future may give birth, surely nothing can happen that will dim the recollection of the pleasant associations and the labors of love that have characterized our past official intercourse. The official and personal relations with the general staff have been pleasant and instructive in the fullest degree. The kind consideration and the thoughtful attention that have been accorded to me under all circumstances by the Commander in Chief and my official colleagues form an epoch in life the recollection of which is of the pleasantest nature. The thought that 'Recollection is the only paradise from which we can not be turned out' (Richter) affords much comfort to those who are fond of sweet memories."

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 19, 1895:

DISEASES.	Week ending Feb. 12.		Week ending Feb. 19.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	3	1	5	6
Scarlet fever	89	12	95	17
Cerebro-spinal meningitis	3	3	0	0
Measles	58	3	96	5
Diphtheria	163	31	185	38
Small-pox	1	2	0	0
Tuberculosis	93	150	78	126

To Military and Naval Medical Officers.—The undersigned, members of the committee on litter appointed by the Association of Military Surgeons of the United States to report at the approaching annual session a desirable form of military litter for the comfortable, safe, and expeditious transportation of the sick and wounded, solicit from medical officers of the national services and the National Guard of the several States suggestions, plans, or models of such an appliance, to be delivered to either of them at their respective addresses, on or before the 1st of April, 1895:

Albert L. Gihon,
Medical Director of the U. S. Navy, U. S. Naval Hospital, Washington, D. C.
John Van R. Hoff,
Major and Surgeon, U. S. Army, Governor's Island, Harbor of New York.
Myles Standish,
Captain and Assistant Surgeon, M. V. M., No. 200 Dartmouth Street, Boston, Mass.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending February 15, 1895:*

Purviance, George, Surgeon. Detailed as chairman of the board for examination of assistant surgeons for promotion, to convene in Washington, D. C., March 11, 1895. February 8, 1895.

Hamilton, J. B., Surgeon. Granted leave of absence for six days. February 7, 1895.

Austin, H. W., Surgeon. Detailed as member of the board for examination of assistant surgeons for promotion. February 8, 1895.

Irwin, Fairfax, Surgeon. Detailed as recorder of the board for examination of assistant surgeons for promotion. February 8, 1895.

Stimpson, W. G., Passed Assistant Surgeon. To assume temporary command of service at Port Townsend, Washington, during the absence of Passed Assistant Surgeon J. O. Cobb. February 13, 1895.

Eager, J. M., Assistant Surgeon. Ordered to examination for promotion. February 9, 1895.

Blue, Rupert, Assistant Surgeon. Granted leave of absence for six days. February 13, 1895.

Norman, Seaton, Assistant Surgeon. Ordered to examination for promotion. February 9, 1895.

Society Meetings for the Coming Week:

Monday, *February 25th:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

Tuesday, *February 26th:* New York Dermatological Society; Buffalo Obstetrical Society.

Wednesday, *February 27th:* New York Academy of Medicine (Section in Laryngology and Rhinology); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Auburn, N. Y., City Medical Association; Medical Society of the County of Albany; Philadelphia County Medical Society; Berkshire, Mass., District Medical Society.

Thursday, *February 28th:* New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia.

Friday, *March 1st:* Practitioners' Society of New York (private); Baltimore Clinical Society.

Saturday, *March 2d:* Clinical Society of the Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society, New York (private); Miller's River, Mass., Medical Society.

Answers to Correspondents:

No. 432.—The article has the appearance of an advertisement in disguise. We know nothing about the man.

Births, Marriages, and Deaths.

Married.

Henriques—Oakey.—In Morristown, N. J., on Thursday, February 14th, Dr. H. A. Henriques and Mrs. Alice Dudley Oakey (*née* Mulligan).

Died.

Ashton.—In Philadelphia, on Monday, February 11th, Dr. Samuel K. Ashton, aged seventy-three years.

Bailey.—In Pittsfield, Mass., on Saturday, February 9th, Dr. Charles Bailey, aged seventy-four years.

Bowles.—In Springfield, Mass., on Tuesday, February 12th, Dr. Stephen Wallace Bowles, in his sixtieth year.

Rose.—In Palmyra, O., on Tuesday, February 12th, Dr. L. C. Rose, aged forty-five years.

Letters to the Editor.

THE "DEVELOPMENT" OF INSANITARY CONDITIONS.

Washington, *February 18, 1895.*

To the Editor of the New York Medical Journal:

Sir: I set too high a value on the columns of the *Journal* to occupy space in discussing the meaning of a word which may be found in "Webster" or any of the other dictionaries; but as an editorial in your issue of February 9th calls in question the applicability of the word "develop" in the third paragraph of the bill to appoint a commission to investigate the subject of the pollution of rivers and other natural sources of water supply, and reflects on the literary qualifications of those concerned in framing the bill, I feel called upon to claim space for a few words, as I had the honor to draft that bill at the request of those interested in the subject. "One of the sections," your editorial states, "provides that 'at the next session of Congress the commission shall submit such suggestions as may seem desirable for the purpose of remedying any insanitary conditions that may have been "developed" by its work.' Surely this is not what the framer of the bill meant, for he can hardly intend that the commission shall go into the business of developing insanitary conditions; he has simply lapsed into sloppy English." This is precisely what the framer of the bill meant and intended. The transitive verb develop means to take a thing out of the wrappings or obscurities in which it is enveloped. The thing referred to is in existence, but it is not apparent until its existence is developed by some agency. It may be intangible, an idea, for instance, but the existence of the idea may be developed by the use of words spoken or written. It may be invisible as is the photographic picture, which can be seen only after it has been developed by certain chemical solutions, or it may be a very material and substantial thing, as a hostile army in line of battle, the position of which may be developed by reconnoitering parties. The first two illustrations are analogues and the last is the homologue, from the literary standpoint of "the insanitary conditions which may be developed [Synonyms: uncovered; unfolded; laid open; disclosed; exhibited; unraveled; disentangled; detected.—*Webster*] by the labors of a commission of competent investigators."

Some persons, through ignorance or carelessness, use the word in the sense of to produce or to cause to come into existence. Against these the charge of lapsing into slovenly English may be preferred with justice, but certainly not against those who give the word its true value.

Please oblige me by publishing this communication, that the unmerited slur on the language of H. R. 8481 may not be passed over in silence.

Charles Smart,
Major and Surgeon, U. S. A.

METHODS OF TREPHINING.

Axtell, Neb., *January 25, 1895.*

To the Editor of the New York Medical Journal:

Sir: In your *Journal* of January 19, 1895, under the heading of A Method of Trephining, reference is made to an article by J. M. Cotterill, M. D., F. R. C. S. Ed., published in the January number of the *Edinburgh Medical Journal.* In this article Cotterill proposes a new and, as he maintains, an expeditious method of opening the cranial cavity without much loss of bony tissue, as in ordinary trephining. Undoubtedly the preservation of the wall of the cranium in its integrity is of the greatest consequence, in that it makes it possible to secure repair of the excised disc of bone and subsequent protection to the intracranial parts. Such an article as this one referred to should create considerable sensation in the surgical world, not, however, from the originality of the idea, but rather from the fact that at this late date a claimant should appear for honors long since won by another. In the New York *Medical Record* of February 10, 1894, appeared an article by Dr. J. S. Pyle, of Canton, Ohio, describing a new method of opening the cranial cavity by means of what is known as the diamond drills.

On comparing Pyle's and Cotterill's operations, one can readily observe the simplicity of the former as compared with the latter. Pyle's is a short, direct method of accomplishing a definite purpose, while Cotterill's is laborious and complicated. Pyle incises the scalp in the selected place and, with a sliding or rocking motion, cuts quickly through the skull with his diamond drill, leaving a small peninsula of bone uncut. This peninsula is fractured in laying back the flap, but the circulation in the loosened fragment of bone is not interfered with. The parts coaptate nicely, bony union is established, and the cranial contents are better protected than by the old trephine method.

Cotterill's method, with its complicated incisions and numerous perforations, arrives at the same result, but by a more devious route. In no respect does it surpass Pyle's operation. It has no claim on the profession not fully covered by its predecessor. The diamond drills have come to stay.

Franklin Shoff, M. D.

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of November 28, 1894.

The President, Dr. De Forest Willard, in the Chair.

A Demonstration of a Mechanism of Intussusception.—Dr. Robert T. Morris, of New York, by invitation of the board of directors, made the demonstration. He exposed the ileum of a rabbit, and it was observed that when it was touched with sodium carbonate contraction of the circular fibers of the bowel at the point touched would take place in from fifteen to thirty seconds. The longitudinal fibers of the bowel still carrying on peristaltic movement (a reversed peristalsis, by the way), would invaginate that portion of the bowel which was in a state of firm contraction. He did not know the exact value of this experiment, except that it showed the mechanism of one form of intussusception. We knew that certain ptomaines produced muscular spasm, and it was fair to assume that some cases of intussusception were due to a poisoning of the muscular fibers of the bowel, as in the experiment. In post-mortem intussusception, as he had watched it, there had been paralysis of the circular fibers of the bowel, and an adjacent segment of bowel had dropped into the relaxed portion, almost the reverse of the mechanism demonstrated in this experiment.

Specimens Illustrating Each Step in the Progress of Infective Appendicitis were then shown by Dr. Morris, who said he believed appendicitis to be an infective exudative inflammation of the appendix vermiformis, which followed the production of an infection atrium of any sort in the mucosa or in the peritoneal covering of the appendix. He believed that when the infection atrium had been produced, bacteria at once entered the lymphoid structure and the cellular coats, and that then the stage of exudation began and the tissues were compressed by the exudate. There was no doubt that in the majority of cases there was an exudate compression which was fatal or had a tendency to be fatal to the lymphoid and cellular coats, and the reason was because the lymphoid and connective tissue and mucosa were confined within a narrow tube of muscle and peritonæum. In the colon, when infection began and exudation took place, there was abundance of room for swelling, and the interstitial exudation did not lead to compression and anæmia. In the narrow appendix there was not room. The lymphoid tissue could not do its work as a strainer of bacteria, and therefore the lymphoid, mucosa, and connective tissue forming the inner tube were compressed to the point of strangulation in many cases. If not to the point of strangulation, compression anæmia was produced, which allowed of more rapid toxic destruction of the cells, and the toxines produced by the bacteria which had entered the infection atrium caused destruction of the cells before nuclein could be poured out and the leucocytes did their work. Thus there was frequently rapid destruction of the mucosa and lymphoid coats which should act as a protecting coat, but which were destroyed and became a prey to bacteria because they were under compression.

Proliferative endarteritis began very early, and this occurred in a small terminal artery, for, practically, the only arterial supply of the appendix was from a solitary terminal artery. If a branch of the artery became occluded, a round punch-hole slough formed at the point supplied by this branch. If more of the artery became obliterated there was frequently complete gangrene of the appendix. Only a few hours were required for an obliterating endarteritis to become sufficiently marked to lead to destruction of all parts not supplied with blood by bacteria which were ready to pounce upon such parts. He thought that usually in the very early stage of the infection there was a mixed infection. Streptococci were apt to be present, and these with other bacteria sent the temperature up. The temperature from infection by streptococci or from mixed infection might be quite high, whereas when the infection was from the colon bacillus the temperature was not apt to be high, but about 100° to perhaps 101° during a most violent attack of infective appendicitis going on to death. This statement in regard to temperature the speaker was almost prepared to make as a direct statement, but he would wait for more observations before asserting that a high temperature indicated streptococci or mixed infection, and that a low temperature indicated a colon-bacillus infection. He was almost certain, however, that the toxine of the colon bacillus did not send the temperature high.

Dr. Morris showed a normal appendix which had been removed post mortem.

Another specimen showed the effect of exudation into the appendix a few hours after infection had taken place. The inner tube, composed of the lymphoid and connective tissue, was distinctly swollen. In a third specimen a little rhexis was found, all the structures being infiltrated with blood.

There was a complete rhexis involving all the tissues in the fourth specimen, the fibers of all structures being separated by effused blood. In the patient from which the specimen had been removed the wound had been very septic and no granulations had formed for eight days. The patient had then had pneumonia of the right side, and after the pneumonia had been well under way the appendix wound had begun to granulate and the patient had recovered.

The fifth was another early specimen, in which there was a pin-hole puncture. In this case the appendicitis had lasted about forty-eight hours. The artery being obliterated at this point, had allowed a small pin-hole opening to form.

The sixth specimen, an inch of which had been removed, showed very clearly how the interstitial exudation caused the inner tube to be compressed by the outer tube.

A specimen was shown in which the bacteria had been confined to the appendix for several days and then had suddenly passed through the mesappendix, and the patient had had acute septic peritonitis.

Dr. Morris exhibited another specimen in which a small punch-hole perforation had formed and had been immediately walled in by lymph. The appendix had been quite free except at the tip, where this mass of exudate had held it. This was a chronic ulcerating appendix. After the acute stage of infection was passed the ulceration was apt to continue, because the appendix was a nook in which bacteria persisted, and after the mucous membrane was destroyed the bacteria were apt to keep up a vigorous onslaught on the exposed tissues. These were the appendices that produced fatty concretions. He had found that concretions in the appendix were phosphatic, fæcal, or fatty. Some of these concretions contained fifty per cent. of fat. It had occurred to the speaker that possibly a retrograde change in the lymphoid might account for it, and consequently he had submitted the lymph coats of several appendices for examination. From normal appendices he had obtained eight per cent. of fat; from appendices with small ulcerated spots, nineteen per cent.; and from appendices with general ulceration of the mucous and lymphoid coats, twenty-six per cent. This had shown that the proportion of fat in chronic ulcerating appendices was very large, and if the products were confined in the tubes it was probable that these fatty concretions came from that source.

Before gangrene in the appendix had occurred we sometimes found gangrene of the mesappendix from thrombosis of the veins and obliterating endarteritis. Sometimes the appendix seemed to receive enough nutrition from the cæcum to live a few hours longer than the mesappendix.

After infection had continued for some time—a few years—we frequently found excessive hypertrophy of the appendix. This specimen showed this hypertrophy in an appendix which was the seat of chronic ulceration. Most of the time the patient had been without symptoms, but at times he had been compelled to give up work. He had found the appendix extremely tender on palpation, and had learned that of late the patient had referred the pain to that region.

In some cases after destruction of the mucosa gradual wasting of the lymph coat took place. This was shown in a mount of four transverse sections. In the first, the mucosa and submucosa were swollen with exudate. In the next the mucous coat had disappeared and the lymphoid had almost disappeared. In the next nothing but the muscular and peritoneal coat remained, and in the last there was no lumen and only a little remnant of the muscular and peritoneal coats.

In cases in which the terminal artery was involved quickly in proliferating endarteritis the entire appendix might become gangrenous. The speaker showed an appendix which had become completely gangrenous in thirty-six hours. No portion of this appendix had remained alive, and there had been an opening of about two inches in the cæcum.

After the various structures had disappeared, leaving little but the muscle and the peritonæum, there might be marked symptoms from sclerosis of the nerves. The nerves of the appendix not destroyed became involved in the cicatricial contraction and frequently kept up a great deal of disturbance in this vicinity, and not infrequently the movements of the colon were inhibited. As a result there was apt to be chronic constipation. He had removed several such stumps and the patients had immediately felt relief.

The patient from whom this specimen had been removed had had several attacks of appendicitis, and on removing the appendix Dr. Morris had found that it was filled with nematoid worms. The cæcum was a favorite resort for the oxyuris, and he had no doubt that the presence of the oxyuris in the appendix not infrequently gave rise to an infection atrium.

Another specimen showing three distinct cavities with contractures between was presented. It had been extremely firmly adherent. The patient had had a number of mild attacks, and once an abscess had opened externally, and finally it had been found necessary to remove the stump, which contained three well-marked cavities similar to what we often saw in pus tubes.

Among the latter forms was one represented by two specimens which had been removed from a professor in one of our colleges. He had been unable to stand and had been compelled to give up his work for a year. On removing the appendix Dr. Morris had found these two portions some distance apart. The little short stump represented the healed appendix. The lower portion had been an inch and a half away from the stump. It had been a focus of infection, and had been kept alive by adhesion to surrounding tissues.

If we were to consider the complications of appendicitis, he said, we should open up an enormous field. He simply showed a specimen belonging to Dr. Willard. Here, he said, we had an abscess of the liver, which was not an infrequent complication, and probably occurred oftener than was generally supposed. In very mild cases, and in cases in which the infection had been in progress for not more than two days, he had found infected thrombi in the mesappendix, which might easily lead to emboli and abscess of the liver. He was quite sure that this occurred in cases where appendicitis was not suspected. It was not necessary that there should be gangrene or extensive disease of the appendix to have mesenteric thrombosis and portal embolism.

Dr. John Ashhurst, Jr., said that he had listened with a great deal of pleasure to the description of Dr. Morris's specimens, and that there were some points that had particularly interested him. What Dr. Morris had said with regard to the occurrence of inflammation of the appendix followed by gangrene from pressure, the appendix being a narrow tube, and therefore not able to bear great distention with impunity, was paralleled by what was seen in other parts of the body. We saw it in some cases of felon, where the tension became very great from the temporary hypertrophy, as it had been called by Virchow. When such a finger was opened, no pus and but little blood might escape, but the whole finger might be apparently packed with dead or dying tissue. This also was an instance of necrosis from tension, due to excessive inflammation where there was no chance for expansion. He had seen the same thing in the testis, where necrosis of a considerable portion of the gland might take place from the firm tunica albuginea preventing expansion of the inflamed organ.

He had also been interested in the specimens showing obliteration of the lumen of the appendix. He had seen such specimens. Several weeks ago he had removed the appendix of a young lady who for many years had suffered from recurrent attacks of appendicitis, and between the attacks had had curious symptoms, referred to the digestive system, which he thought were explained by the condition which had been found at the operation. In this case the appendix had been so much reduced in size that it had been discovered with great difficulty. It had been simply a fibrous band surrounded by serous membrane. No mucous membrane could be seen except a little pouch near its junction with the cæcum.

The speaker had been interested in what had been said with regard to the causation of reflex symptoms, such as interference with the function of the bowel, which had been explained by a condition of local neuritis. In the case to which he had just referred, the patient had suffered for years with almost continual nausea, although without vomiting. She could not take a meal without suffering with nausea for hours afterward. He thought that the digestive symptoms had been explained by the presence of adhesions. The cæcum had been closely adherent to the abdominal wall, and it was easy to understand that under such circumstances the nerves of the part would be seriously pressed upon, and neuritis might follow. We found an analogy to this in cases of Littre's and Richter's hernia, where a diverticulum of the bowel, or a small portion of the intestine, was caught in a hernial opening. In such cases there might be grave symptoms of strangulated hernia, though only a small portion of the lumen of the bowel was involved.

Dr. Morris had referred to the presence of worms in the appendix. Last winter the speaker had operated in a case of acute appendicitis in which, after evacuating a quantity of pus, he had seen what he supposed to be an unusually long appendix, but on bringing it out it had proved to be a lumbricoid worm loose in the peritoneal cavity, the explanation of its presence being, of course, that it had escaped through a perforation.

Recently he had operated on a patient who had been operated on in Brooklyn four years before for appendicitis, and who had supposed that his appendix had been removed. Two years after the first operation the cicatrix had reopened and had discharged a small quantity of pus, and since then a fistula had remained. When he had come under Dr. Ashhurst's care he had been advised to have the cicatrix divided and the part explored, as it was possible that a silk ligature might be keeping up the discharge. On making an incision, the finger at once had entered the abdominal cavity, and the speaker had felt a full-sized appendix. The case evidently had been one where the surgeon had opened an abscess, and very judiciously, in all probability, had not pushed the investigation further. He believed that in many cases of acute appendicitis the safety of the patient depended upon not making too minute an exploration. If the appendix was not readily found it might be permitted to remain. In this case he had removed the appendix in the ordinary way, and had found it partially obliterated. There had been two diaphragms, as it were, making pouches, and in one of these there had been a pin-hole perforation. The lesson taught by this case was, that when it was possible to remove the appendix without too much disturbance, it should be done; but, as he had just said, he believed that there were cases where the line of safety for the patient rested in not making too minute an investigation, and, if the appendix could not be readily found, in leaving it, and simply evacuating the pus.

Dr. James C. Wilson said that Dr. Morris had rather thrown out some suggestive hints with reference to the pathology of appendicitis than gone thoroughly into the discussion of any particular branch of this wide and complex field of surgical pathology. He would have been glad if Dr. Morris had been able to have given his views more fully in regard to this affection.

He was particularly impressed with what had been said in regard to the remote changes and with the explanation which had been suggested for some of the chronic and troublesome intestinal disturbances which had been so unaccountable in their pathology. He thought that we had all been puzzled and had been unable to explain or to give relief in many cases which probably came within this group of chronic appendicitis, with nerve changes, adhesions, and permanent foci of infection, giving rise to persistent disturbance not yielding to treatment. He had had many such cases, which had been classified under the head of chronic intestinal indigestion with nervous symptoms. The difficulty which he found in cases of this kind was to induce the patients to subject themselves to a surgical operation. In one such case of long-standing ill-health, in which Dr. Deaver had been associated with him, a diseased appendix had been found, and after some months the patient reported that she was greatly improved and had regained her health.

Dr. John H. Musser said he had been particularly interested in the suggestion thrown out by Dr. Morris with reference to the degree of virulence of the symptoms depending upon the character of the infection; that where high fever was an initial symptom the probability was that there was infection with the streptococcus, a form of infection which we knew very well was not likely to yield to treatment. We also knew that the possibilities of more remote infection were greater, and the liability to infection of the peritonæum infinitely greater. If in this way we could determine the character of the infection we should be more guarded in our prognosis and in our treatment. He thought that cases of severe streptococcus infection should be treated early by operation.

He had also been interested in noting that in the pathology of appendicitis we saw that there were two causes for the symptoms, the one mechanical and the other the septic process, the septic process being responsible for the temperature, the mechanical process being responsible for the pain, for the reflex vomiting, and likewise for the occurrence of further pathological changes, such as gangrene. The specimens readily demonstrated that it was impossible to tell whether or not gangrene was going to take place. We could not tell from the local symptoms or from the fever whether or not there was going to be perforation. As we well knew, some of the simplest cases, so far as symptoms were concerned, often resulted in gangrene, and patients might be discharged apparently convalescent when gangrene was going on. He had seen patients operated on at the end of a week or ten days, and gangrene had been found, the presence of which the earlier symptoms had given no indication.

In analogy with streptococcus infection under other circumstances, he said, we noticed here the tendency to recurrence and the tendency to infection of other tissues. He asked Dr. Morris if the cases of recurring appendicitis were not largely of streptococcus origin. He had had a case of this nature. If this was true, it was another argument in favor of resort to operation in these recurring cases.

He had had several opportunities to observe cases of chronic intestinal disturbance due to continuous infection from the appendix, and the removal of this small focus of infection had proved of the greatest value, having resulted, indeed, in the cure of the patient.

Dr. Ernest Laplace said he had been especially interested in the remarks with reference to the relation between the nature of the infection and the temperature. It would be very well indeed if such a relation could be established, but he thought it was entirely vain. Even if we were prepared to say that in appendicitis there were only two forms of infection, that by the streptococcus and that by the common colon bacillus, he should be prepared to say that there would be no two patients in whom the reaction to these points would be exactly the same, and that there were some systems on which the ptomaines of the streptococcus had very little irritating effect and produced very little elevation of temperature, and therefore the temperature at no time was a real index of the severity of the case.

Another point was the relation of intestinal symptoms—intestinal atony to the possible degree of nerve fixation by fibrous tissue resulting from chronic inflammation. He was sorry that Dr. Morris had not given the results obtained in the cases referred to. The speaker's experience in the removal of scar tissue, not only from this part but from other regions, and especially where serous membranes were involved, was that the reproduction of scar tissue was as rapid as before, and he doubted the wisdom of disturbing strong fibrous adhesions, which merely resulted in a little nerve disturbance in the intestine, in order to relieve that condition. We all knew that once Nature had done the work for us we should respect that work, because she had done it better than we could. If we removed this fibrous tissue we left a surface which must granulate and form new fibrous tissue, and the result was the same as before, the same nerves were apt to be affected, and the patient was as badly off, plus the danger of the operation.

The specimens showed, he said, that Dr. Morris had gone deeply into the philosophy of the subject, and the points brought out in the surgical pathology of this affection were interesting and solved many points which had been problems with him.

Dr. John B. Roberts remarked that he should like Dr. Morris to give what evidence he had that neuritis existed in the cases mentioned. The doctor had not gone into the subject of the operative surgery, but had confined himself to the portion which was the more important at this time—namely, the pathology. The speaker would be glad to have him tell whether in his operative work he went upon the principle of a possible neuritis and secondary digestive trouble due to the retention and binding down of the appendix. Did he always make a search for the appendix in the primary operation, even where there was a great deal of pus, or did he evacuate the pus and wait for a subsequent period to remove the appendix? In operations where a short stump had been left had he seen evidences of digestive trouble from fibrous contraction, or were neurotic symptoms found only in cases cured by Nature?

Dr. John B. Deaver said there were only one or two points to which he should refer. The first was the separation of the appendix, to which Dr. Morris had referred, where we found the stump and then the tip of the organ at some little distance. He had met with a similar condition where the tip of the appendix had been the source of the infection In one of these cases the tip had been behind the colon and had contained an abscess.

The pain in chronic appendicitis he had no doubt was due to neuritis in certain cases. He also believed that it was due to traction made on the adhesions. He thought that this was particularly true after operations where we were called upon to remove stumps, and it should make us more careful in treating stumps. Where it could be done the stump should be invaginated and the serous coat of the cæcum stitched over it. The nerves reached the appendix through the mesappendix, and where the mesappendix was not greatly infiltrated we should eliminate the elements of neuritis and look for some other explanation. He believed, therefore, that in these operations followed by severe pain, which was referred to the right iliac region and aggravated by certain motions of the body, it was warrantable to reopen and examine the stump of the appendix, if we could find no other explanation for the pain.

Gangrene of the mesappendix he had seen in a certain number of cases. In one such case the mesappendix had been gangrenous, while the appendix had been practically intact, the operation having been done very early. Dr. Deaver mentioned a case of abscess of the appendix. The patient had but few symptoms either general or local. It had been suggested to him that he had appendicitis, and he had at once agreed to an operation. The appendix had been perforated at its midpoint in the line between the two layers of the mesappendix, making the abscess, which had contained half a drachm of pus, extraperitoneal.

With regard to streptococcus and colon-bacillus infection, he believed that the streptococcus was the most virulent, and he believed also that this played a rôle in certain of the cases with high temperature. It was not the cases with high temperature that he feared. It was the cases with moderate fever that were apt to deceive us. He placed little reliance on the temperature, but was governed by the local condition, the presence of peritonitis, and by progressive invasion of the peritoneal cavity.

The results of operations, so far as his experience went, had been very satisfactory. He had not found reflex disturbance follow removal of the appendix where he had been able to dispose of the stump in the ideal way. Where this had not been possible, on account of dense adhesions, or on account of the fear of breaking down the limiting wall which Nature had thrown out, he had seen pain follow, which, in some cases, had subsequently been demonstrated to be due to adhesions.

Dr. G. G. DAVIS asked Dr. Morris what his view was as to the relation which infection bore to appendicitis. In other words, if there was one form termed infective, what other inflammations of the appendix were there? Infection had been said to be a cause of intestinal catarrh. Might the process also be a reversed one? Did the doctor recognize such a thing as a catarrhal process being a cause of appendicitis?

Dr. M. PRICE thought that Dr. Morris should have taken up more than the pathology, as those who were doing operative work cared very little about the pathology of appendicitis; they cared more about the condition found at the time of operation. He recognized two entirely different conditions with which we had to deal—one where the bowels were confined and it was impossible to move them, and the other where the bowels could readily be moved. These conditions were to be dealt with differently, although both were from the same original cause.

As regarded temperature, he said, in twenty-three abdominal sections for appendicitis, with nineteen consecutive recoveries, he had never seen but one case where the temperature had not been below normal. In looking over the report of Dr. Keen's cases, in a paper in 1891, he noted that in two thirds of them the temperature had been below normal. He noticed the same thing in the reports of other operators; the temperature was below normal at the time that the case came into the hands of the operator. Of course, in the cases that had come into the speaker's hands, the disease had existed from twenty-four hours to three or four days, and there had been time for pus to form.

There was no question that there were nervous symptoms caused by pressure upon nerves. This was sometimes seen after amputations where resection of the nerve might subsequently be required. He had seen it beautifully illustrated in a case recently in Dr. Joseph Price's hospital. The patient had been unable to walk when admitted. Both appendages had been removed, it was supposed, close to the uterus. It had been a dirty case, requiring drainage. After recovery she had still complained of pain in the right iliac fossa. On reopening and excising the right stump it had been found that the ligature had not been encapsulated, and four or five drops of pus had been in the stump. This had been removed and the part curetted, and in six weeks the patient could walk as well as any one.

The speaker knew that Dr. Morris believed in clean surgery and in complete surgery, and he would ask if the doctor would be willing to leave in the pelvis such a mass as Dr. Laplace had referred to, and hope for perfect results. He did not see where Dr. Laplace got his data when he said that the same fibrous condition existed after we had removed the offending cause.

He asked Dr. Morris concerning the mortality, in view of the fact that in the Johns Hopkins Hospital they had had eight deaths in nine operations. Christian Fenger had reported eleven consecutive deaths in appendicitis operations. He believed that all these patients ought to get well unless they were practically dead at the time of operation. The radical men who believed in surgery were to-day saving nine out of ten of the patients. He believed that the reason of the deaths was that complete operations were not done. He agreed with Dr. Ashhurst, that if the bowels were soluble and there was an abscess, the only thing to do was to open and drain, because the patient would get well. He believed that all deaths after operation were due to bad judgment or to bad surgery—the man either operated on a dying patient or he did bad surgery.

Dr. JOSEPH HOFFMAN thought that it took only a few such specimens as had been shown to convince one that appendicitis was naturally a surgical disease. Clinicians had generally considered this affection in the light in which they had formerly regarded tubal and ovarian troubles, but when specimens had begun to be circulated, and the condition of the tubes had been seen, the propriety of operation was no longer a question, and it was acknowledged to be distinctly a branch of surgical work. There was a parallel between the tube and the appendix, and the pathology of the appendix was the same as that of the Falloppian tube.

With regard to this wonderful power of Nature, Dr. Hoffman said that much of our surgery was done to cure the failures of Nature, and this was particularly true in the case of the appendix. The conditions about the head of the colon were such as we should not tolerate in any other portion of the body. If they were in the duodenum, the surgeon would interfere at once. Why should it be allowed to remain in one place and removed in another?

We knew the reflex troubles that adhesions of the tubes and ovaries might cause. We might have any number of reflex symptoms. These same conditions were found in appendicitis. If adhesions of the bowel would cause trouble in the neighborhood of the duodenum, they would also cause trouble in the region of the cæcum. It was no more surgical sense to leave them in one place than in another.

Dr. W. EASTERLY ASHTON remarked that the theory that every case of appendicitis was an infectious case was a long step toward a knowledge of its pathology. No matter what might be the exciting causes, all these inflammations must be accepted as due to infection. The appendix was normally occupied with fæces in a more or less fluid state, and it must therefore contain bacteria, so that any existing cause of inflammation must at once be followed by infection. It had been demonstrated that it was not necessary to have perforation or even ulceration of the wall of the appendix or intestine to permit migration of bacteria. This had been shown by constricting the intestine of a rabbit with a rubber band, when, as soon as stasis was produced, bacteria migrated. It had been further shown that these bacteria under normal conditions produced no trouble, but when there was any interference with the circulation of the appendix or any want of integrity in its wall, these bacteria not only penetrated the tissue, but perforated the wall completely and escaped into the peritoneal cavity. All these cases, no matter how mild, were infectious. The fact that the appendix was a rudimentary and unused organ was a constant predisposing cause to attacks of inflammation, for we knew that the retrograde changes occurring in an unused organ made it especially susceptible to inflammatory attacks.

Again, the anatomical position of the organ rendered it liable to dragging and strangulation. Situated as it was at the head of the colon, with a small mesappendix and a single arterial supply, distention of the large bowel or ileum would drag upon the appendix and induce nutritive changes favoring the migration of bacteria.

He believed that in time all of us would agree that in appendicitis we were dealing with a septic affection, and when we did agree to this, then the knife would be used in all cases so soon as the diagnosis was clear, whether the case was an acute or chronic one.

The President asked Dr. Morris how long he thought it necessary that the septic process should exist before we might have secondary abscesses? This question had come up in the pathological society on the presentation of the specimen of abscess of the liver which had been shown. It had been held by some that the abscess of the liver had probably not been due to the diseased appendix, because it had occurred within five days of the appendix trouble. He had seen three cases in which secondary abscess had occurred within three days.

That these cases of appendicitis were infectious had been demonstrated by the large number of specimens shown.

Dr. Morris said that it was not safe to assume that any particular case of chronic intestinal indigestion was due to the appendix, unless on palpation we could determine that the appendix was probably the center from which the trouble proceeded. In most patients it was not difficult to palpate the appendix. He did not know what proportion of cases of intestinal indigestion were due to chronic infection of the appendix, but he knew that some were, and these should be subjected to proper treatment, which he believed to be surgical.

With regard to temperature, as he had stated, his impression was that high temperature at the outset usually occurred with mixed infection or streptococcus infection. He thought that the results of such infection were apt to be confined to the vicinity of the appendix for the first few days. With the insidious infection with the colon bacillus we were apt to have a temperature of 100° with a pulse of 120. Such a condition was more serious than a temperature of 105° with a pulse of 120. When the vital signs fell apart, we must look out. The general practitioner could not tell *a priori* whether a patient was to be entirely well or entirely dead in three days from the beginning of any attack of appendicitis. This could not be determined in advance, because the extent of the invasion of infection in any given case was not to be estimated. Our surgery had been making progress. If we could not show physicians by our surgery and our statistics that these patients ought to be operated on, we should not operate. He believed that to-day, however, we had an almost perfect operative technique in dealing with most forms of appendicitis.

Dr. Laplace believed that no two patients would react alike to the same infection. The speaker also believed that, but, if the temperature was high, we were apt to have a mixed infection or infection with streptococci. That he had determined by cultures from cases where the temperature had been high. All the points brought forward had been pretty well proved by his work before being presented.

Dr. Roberts asked in regard to the evidence of neuritis. This had been found in the direct examination of the nerves. These specimens had been examined by his pathologists and the evidences of sclerosis found. He had had one case where he had operated for a stump that had been left. The patient had suffered with neuritis, chronic constipation, and digestive disturbances, and had been an invalid for a long while. He had removed the stump, and the patient had made an excellent recovery. The bowels moved regularly; he was free from pain, and had gained in weight. Another gentleman had been compelled to give up his work as a professor on account of irritation in the fibrous remains of an appendix. This had been removed, and he had returned to his normal condition. A physician who had been a nervous, dyspeptic individual for many years had come to him with an appendix which had lost much of its structure. It had contained a few fibers of sclerosed nerves. This appendix had been removed and the adhesions separated, and he was now a completely changed man. The speaker said he could enumerate other cases.

He had avoided the question of operation because it was such a large one. As regarded his own statistics, he felt inclined, he said, not to quote them, for it would savor of boasting. He said, however, that in a pretty large number of patients operated on while infection had been limited to the appendix, and in the interval between acute attacks, he had had no deaths and nothing which had seemed to point to a bad result. He could not look forward to death in a case of this sort. Surgeons had developed an operation which was less to be feared than a single attack of appendicitis.

He had never seen catarrhal appendicitis. He had operated in cases where this diagnosis had been made, but he had never seen the affection. There was no doubt that catarrhal inflammation of the mucous membrane might occur, but he doubted if it ever gave rise to symptoms.

He believed, with Dr. Price, that it was better to do a pretty radical operation when we started in to remove the infected mass. He did not feel like leaving such a mass after having looked at it. His statistics, which would be published before long, would give an analysis of his results. We saved most of our badly infected cases to-day. Cases in which he thought, a short time ago, the mortality rate would have been fifty per cent., he believed would now give a mortality of less than ten per cent. These were the cases with pus, wide infection, and peritonitis.

As Dr. Ashton had said, bacteria might be present and no trouble arise until an affection atrium occurred, when the bacteria at once migrate. This might be caused in various ways; for instance, dislocation of an appendix from its particular position was very common. The individual might be struck by the elbow of a friend, or in certain manipulations the appendix might be displaced. It might not go back to its original position; it might be twisted on its mesappendix. Its contents were locked in, and there might be a little discomfort, lasting a few hours. All at once bacteria would begin to migrate because the mucosa had undergone necrosis from twist pressure. This dislocation of the appendix was very common, and was usually a matter of no importance to the patient. He also believed, as Dr. Ashton had said, that the appendix was more readily attacked by bacteria because it was a rudimentary structure, just as some wisdom teeth were more liable to decay on this account.

As to the length of time between the beginning of infection and the occurrence of liver abscess, he could not say. He could only say this, that within forty-eight hours of the beginning of an attack of appendicitis he had found thrombi in the veins of the mesappendix which could have caused the beginning of a liver abscess on that day. He did not see why there might not be abscess of the liver within two or three days of the beginning of an attack of appendicitis.

Miscellany.

Inflammation of the Parotid Gland as a Complication of Pneumonia.—The *Archives cliniques de Bordeaux* for January publishes an article on this subject by Dr. J. Hobbs in which he says that among the complications which are but rarely seen in pneumonia parotiditis certainly has its place. If we refer to special works, to Grisolle's *Traité de la pneumonie*, for example, we see that this author gives only a very short chapter to it, and insists on its exceptional character and its almost fatal tendency to suppuration. During the last few years this question, from the bacteriologist's point of view, has come up again, and several authors have occupied themselves with the subject, and have arrived at the conclusion that it is a question of pneumococcous origin, the pneumococcus having been found by them in the pus of the parotid abscess.

In these cases acute parotiditis occurs suddenly as the fever diminishes in pneumonia, and, after inflammation characterized by redness, swelling, and a sensation of false fluctuation, there is formed in twenty-four or forty-eight hours at the most, an abscess which it is necessary to open freely in a very short time.

When a bacteriological examination has been made it has been ascertained, sometimes on gelose tubes, sometimes on plate cultures, that the pyogenic agent is the pneumococcus and this important result became undisputable when the authors could, by direct inoculation with the pus in a mouse, reproduce in that animal a true reaction of the pneumococcus, a generalized pneumococcia.

The explanation of suppurating parotiditis thus becomes easy, and we should rank it among the extra-pulmonary tendencies of the pneumococcus, along with endocarditis, meningitis, and otitis, of which M. Netter has demonstrated the distinctly pneumococcous origin. But the results may not be accounted for in this way, says the author. Parotiditis occurring during the course of the disease, at the decline of the fever, or even during convalescence from pneumonia, is not inevitably destined to suppurate; the whole thing may be limited to a hard and painful tumefaction, more or less resisting pressure on palpation, giving also a sensation of false fluctuation and becoming completely resolved in a certain length of time, without which intervention (incision or puncture) will be necessary.

The author relates several cases; among them the following, which had come under his own observation: The patient was a man, forty-one years old, who entered the hospital on August 31st. He stated that four years before he had received a violent shock in the right thoracic region. The day after his entrance into the hospital the fever was high, there was considerable dyspnœa, and the temperature was 102·1° F. An external examination of the chest revealed nothing abnormal and the ribs were not fractured. On percussion, a noticeable dullness to the right and behind was found, the thoracic vibrations were exaggerated. Auscultation in the same region revealed a crepitant râle, there were characteristic rust-colored sputa, and the patient was very weak. There was no albumin in the urine.

On September 2d the temperature was 102·8°, and the patient was very delirious; the stethoscopic symptoms were somewhat modified. A very intense tubal souffle was found in the lower two thirds of the right lung, and a few crepitant râles were again heard. On the 4th the temperature was 104°, and the condition was the same. On the 5th, the souffle was not so loud, expectoration was more abundant, and the temperature was 102·6°. On the 6th the patient's condition was a little better, and the urine was abundant. Auscultation revealed very numerous subcrepitant râles in the lower half of the right lung; percussion, which was very painful behind, showed dense dullness. The temperature was 102·2°. The patient's face had a pinched look; he did not eat and complained of an intense thirst. The expectoration was always abundant, but it had lost its viscid consistence and its discoloration; it was now seropurulent. The temperature was 102°. On the 9th the patient expectorated pus. Percussion showed a zone of dullness behind and to the right, in the lower third, over a surface a little larger than a five-franc piece; at this point a true gargling and an exaggerated resonance of the voice were ascertained. The temperature remained at 102·2°, and the patient's general condition was not ameliorated. Further, he expectorated constantly, especially in the morning, as in the case of a true vomica. It was now the twelfth day, says the author, and all these symptoms pointed to the existence of an abscess following pneumonia. On the 13th the local condition of the lung was becoming ameliorated; expectoration was less abundant, the dullness was less extensive, and the cavitary symptoms had lost their distinctness. On the 14th the patient complained of pain in the left parotid region. At this point a tumefaction invading the masseter in front and tending to extend below the angle of the jaw was found. Here the skin was red; on palpation, which was very painful, there was a sensation of profound resistance to pressure. Examination of the buccal cavity did not show anything in particular. On the 15th the pain was again intense, and the lowering of the inferior maxilla was almost impossible. The skin was red and hot. On palpation, it was thought that there was fluctuation. The temperature was 100·8°. On the 16th the tumefaction had greatly diminished; nevertheless, a puncture was made with Straus's syringe, which did not give a drop of liquid; meanwhile the author started cultivations in two gelose tubes. At the end of four days there was no trace of a colony. On the 18th, the tumefaction had completely disappeared and the patient began to eat. Convalescence in this case was particularly long and marked by icterus which lasted nearly two weeks. At this time the patient had alimentary glycosuria and there was albumin in the urine. The treatment which was carried out during the entire course of the disease was essentially tonic and directed, in the beginning, to antisepsis of the digestive canal. Cachets containing eight grains of benzo-naphthol were given successively, one each day, which was followed by salol in doses of thirty grains a day. Creosote (in potions and inhalations) was also administered for the pulmonary abscess, which, however, had perfectly run its course. On October 13th the patient left the hospital completely cured.

What significance, says Dr. Hobbs, should be given to this case? What is the pathogeny of parotiditis aborted in some degree, of a fluxion of the parotid gland? Should it be ranked with suppurating parotiditis due to the pneumococcus, or should it be completely separated from the list of the extra-pulmonary pneumococcous causes? The latter opinion, says the author, is too exclusive.

Without doubt, he says, it was not here a question of specific pneumococcous infection of the parotid gland, since in the cases mentioned there had not been suppuration, and suppuration, so to speak, is the pathognomonic characteristic of the metapneumonic complications. Further, the bacteriological examination had given negative results. The objection may be raised that inoculation of the mouse had not been made; that, surely, was a weak point, but the sole fact that the puncture had given no inoculable liquid removed from this objection a part of its value.

The author was led to connect this inflammation of the parotid gland with an aseptic glandular alteration, and here, he says, he could not but accept the division made by Claisse and Dupré in their work, *Les Infections salivaires.* These two authors had to distinguish the canalicular alterations, which are always septic and suppurating, from certain aseptic glandular alterations depending on a general cause, occurring as dystrophia following serious poisoning or an infectious disease.

From an anatomical point of view this glandular dystrophia can only manifest itself by a simple modification in form of the glandular *culs-de-sac* and of their cells. In one case Claisse and Dupré observed necrosis with destruction of the epithelial cells and of their nuclei.

From a clinical point of view, it is here a question of a common and simple infection, occurring during pneumonia, which was especially serious in this case, putting the patient in a condition of the least resistance. This inflammation of the parotid gland, which is so remarkable for its short duration and its easy resolution, may be compared to the parotid tumefaction described for a long time as occurring in menstruation, in blennorrhagia, in grippe, or even in gout, and distinguished from those serious forms of parotiditis, constantly suppurating, where the pneumococcus is found in pneumonia and Eberth's bacillus in cases of typhoid fever.

The American Academy of Medicine.—The twentieth annual meeting will be held at Johns Hopkins University, Baltimore, on Saturday, May 4, and on Monday, May 6, 1895, under the presidency of Dr. J. McFadden Gaston, of Atlanta, Ga. The preliminary programme includes the following papers: Expert Testimony, by Dr. Henry Leffmann, of Philadelphia; Hospital Management, by Dr. W. L. Estes, of South Bethlehem, Pa.; The Proper Teaching of Physiology in the Public Schools as a Means of preventing Intemperance and Venereal Disease, by Dr. De Lancey Rochester, of Buffalo; The Problem of Dependency as Influenced by the Chinese in America, by Dr. W. F. Southard, of San Francisco; What Agencies conspire to check Development in the Minds of Children? by Dr. Madison Taylor, of Philadelphia; How to Avoid the Dispensary Abuse, by Dr. Emma B. Culbertson, of Boston; Contract Medical Work and Fees, by Dr. Charles P. Knapp, of Wyoming, Pa.; What shall we do with our Alcoholic Inebriate? by Dr. J. W. Grosvenor, of Buffalo; Life Insurance in its Relation to one of the Dependent Classes, by Dr. E. O. Bardwell, of Emporium, Pa; Some Results of Competitive Medical Charity, by Dr. George M. Gould, of Philadelphia; Criminal Anthropology, by Dr. E. V. Stoddard, of Rochester; The Increase of Insanity, by Dr. Gershom H. Hill, of Independence, Ia.; A Perfect Consultation, by Dr. L. Duncan Bulkley, of New York; An Analysis of the Reports of the Examinations by the State Boards of Medical Examiners, by Dr. Perry H. Millard, of St. Paul; The Limits of a Physician's Duty to the Dependent Classes, by Dr. James W. Walk, of Philadelphia; The Economic Aspect of American Charities, by Dr. Bayard Holmes, of Chicago; and Is our Financial Relation to our Patients and to the Community the Best Possible? by Dr. Woods Hutchinson, of Des Moines. Dr. Leartus Connor, of Detroit, will read a paper the title of which will be announced.

The Regression of Certain Goitres after Exposure of the Hypertrophied Thyreoid Body to Air.—The *Province médicale* for January 26th contains an article on this subject by M. L. Bérard, who relates the following case which had come under M. Poncet's observation, and showed very plainly the favorable results that may be obtained with this treatment, which, he says, is easy for the surgeon to practice and painless for the patient: The patient, a young man without any previous history of disease, presented an enormous two-lobed goître. The affection had shown itself four years before in a progressive increase in the size of the neck, and this had gone on imperceptibly since then, without any inflammatory attacks and without causing any serious functional troubles. However, for several months the patient had complained of dyspnœa, which became more and more marked. At the examination it was ascertained that the general form of the neck was like that of the trunk of a cone very broad at the base. There was hypertrophy of the lateral lobes of the thyreoid body, which were represented by two pyriform masses from nine to ten centimetres in height, of a homogeneous consistence, and resisting pressure; there was no appearance of a hard core or of cystic points, and no notable increase of the median lobe. There did not seem to be any retrosternal prolongation. The skin over the tumor was free from adhesions, but the tumor, on the contrary, followed all the movements of the larynx. There was rhythmical swelling keeping time with the beating of the pulse, without true expansion. The external jugular was deviated to one side and slightly dilated; the anterior jugular was distinctly outlined, as well as the extensive anastomosis which united it to the external jugular. The vasculo-nervous plexus of the neck was concealed behind the two hypertrophied masses and communicated its throbbing to them. The eyes were slightly brilliant, without exophthalmia; there was no palpitation, or tachycardia, or tremor, and the voice was goîtrous. There was no myxœdema or change in the character, and the conceptive faculties were intact. There was a slight puffiness of the face, with rather marked anæmia. An examination of the urine showed nothing, and the general condition was good. The cervical circumference at the level of the most prominent part of the tumor (three centimetres above the sternal notch) was forty-two centimetres.

The patient was put under the influence of ether and a longitudinal median incision was made in the subhyoid region, involving all the soft parts as far as the capsule of the thyreoid. A fleshy goître, furrowed with large veins, the network of which covered the anterior surface, was found. There were no outgrowths, only two lateral masses. After incision and reflection of the capsule, displacement to the outer side was attempted; but, whether because of the extreme softness of the trachea, or because of the presence of a retro-tracheal thyreoid ring, as soon as the right lobe crossed the lips of the incision, a suffocative attack was immediately produced. Dislocation of the other lobe only aggravating these symptoms, the physician contented himself with isolating the neighboring tissues on the edge of the tumor, which was put back in its former place and the wound left open under the dressing. All dyspnœa disappeared. There was no hæmorrhage at the time or afterward. At the end of forty-eight hours several clamps were removed and the dressing, which was saturated with a great deal of serosity, was changed. During the following days the patient complained of a sensation of tension about the wound, but he no longer felt any functional inconvenience.

Eleven days after the operation the neck was again measured and the circumference was found to be thirty-eight centimetres, a diminution of four centimetres. A month later the measurement was thirty-six centimetres, and two weeks after that it had gone down to thirty-three centimetres. The wound where the incision had been made was almost completely cicatrized and the ugly shape of the neck was so very much modified that no trace of the deformity could be seen unless the shirt collar was very much opened. Above all, the normal tone of the voice had returned, also the patient's ability to walk rapidly and even run without inducing palpitation and suffocation.

How, says the author, is this to be explained? No more than in the case of exothyreopexy is it possible to formulate a complete and logical theory. It is on observations, especially clinical, he says, of general atrophy of goîtres after unimportant interventions involving the thyreoid body or the capsule that M. Jaboulay based his new method, and, according to him, if some of them revert to a perverted state of sanguineous and lymphatic intraglandular and extraglandular exchange, we must take into consideration also purely trophic direct or reflex phenomena. M. Brown-Séquard had reported several experimental facts of sensitive and trophic disorders following excitation or an incision of the superficial soft parts of the neck.

But, says M. Bérard, if the theory of the procedure is not yet sufficiently established, the same is not true of the indications. Its aim is not to dethrone partial thyreoidectomy or exothyreopexy; as in the latter operation, exposure to air will be a valuable resource in numerous cases where radical intervention is rendered impossible or very hazardous because of the nature, the size, or the connection of the goître.

In young patients the tumor is always buried in the network of enormous veins, without, however, threatening suffocation by downward retrosternal prolongation. This type of goître may exemplify two particularly frequent conditions. It may spread on the surface in front of the laryngo-tracheal tract and on the vasculo-nervous plexus of the neck, and thus occasionally cause dyspnœa on exertion and symptoms of irritation of the vagus and of the cervical sympathetic; or it may send a unilateral or bilateral prolongation behind the trachea, which often does not manifest itself by any serious symptoms in the ordinary conditions of life, but produces imminent suffocation on the least attempt at dislocation or of *morcellement* of the tumor.

Simple exposure to the air has, beyond all dispute, says M. Bérard, the following advantages: Absolute harmlessness; complete absence of hæmorrhage; preservation of the connection of the thyreoid body with the trachea; and, finally, the possibility of effecting, without the aid of general anæsthesia, simple insensibility of the superficial surface with methyl chloride or with cocaine. Accidents with anæsthesia are not the least of the complications in surgical intervention in cases of goître.

A Plea for Old-fashioned Diet.—In the *Australian Medical Journal* for December 20th, Alexander Lewers, M. R. C. S., of London, contributes an article on this subject in which he says that, if we take all the foods and beverages now procurable at any respectable chemist's at their face value, a man might go from the cradle to the grave without any digestive functions at all. It is all done for him in the laboratory. Since the days of Liebig's extract, he says, we have had a bewildering vista of artificially prepared foods opened up, and the practitioner of to-day suffers rather from an *embarras de richesses.*

His personal experience of these medical luxuries, he says, has been somewhat disheartening, although the preparations are all that they purport to be, but the difficulty lies in inducing the patients to take them. It is not implied that the researches in this direction have not been productive of much good, and promising much that will probably be better, but the spirit of ultra scientificism, says Mr. Lewers, seems to be abroad to the detriment of common-sense observation. There is a growing tendency to lean on the deductions of the laboratory, to accept laboratory tests as to the behavior of drugs and foods, and to trust less and less the results of what happens under our own eyes. A glass test-tube and a bottle of hydrochloric acid, says the author, do not, and never will, represent the human stomach under any condition, and even theories formulated on the evidence of minute quantities of gastric juice abstracted from the stomachs of uncomplaining patients are utterly worthless, as they represent but a momentary phase of ever-changing conditions. The practitioner must remember that in practice we have to deal with individuals, not with averages, and, just as there are not two human faces exactly alike, so there are no two human stomachs precisely similar.

And this fine dieting is not only impossible, but wrong in practice, and the knowledge of the average is of use to us just to that degree that we can determine how closely the patient approaches to or departs from it. The diet in typhoid fever, says Mr. Lewers, may be chosen for illustration, as the problem we are interested in is both simple and difficult—first, because the general principle is so clear; secondly, because the application of that general principle to the individual requirement is difficult. In typhoid fever the whole gastro-intestinal tract is profoundly affected, and the diet must be as far as possible fluid and not irritating.

In a recent paper, says the author, Dr. Springthorpe advocates the exclusive use of a malt extract, and gives a series of cases which show no worse and no better results than those on a more varied diet. It may be urged, he says, that a typhoid-fever diet should be varied rather than monotonous, and that in future much of the wasting of this and other diseases may be obviated if we can only suit our variations to the particular patient. For the staple article, milk still holds the first place. There is the objection, however, that it is frequently passed undigested. In this case it may be diluted, with limewater or barley-water or, if necessary, peptonized. At the same time the patient's attitude toward it must be observed. If there is a pronounced distaste for it, and it is continued to be forced upon an unwilling stomach, it will in all probability be passed undigested, while if it is given judiciously and in proper quantities there will rarely arise any need for interference. Given intelligently, it admits of being mixed with soda-water and stiffened with gelatin, warmed or iced, sweetened and flavored with a dash of tea, coffee, or cocoa, so that the monotony may be effectually disguised.

The first of the classical variations is beef tea. This is often an unpalatable and sickening concoction, and it is not to be wondered at that patients do not appear to derive much benefit from it. Mr. Lewers himself prefers it made from the fresh beef to any of the patent essences, although these may serve occasionally. He generally directs that the stock should be flavored with vegetables, for in this way it is rendered more palatable and more nutritious. It should form into a gelatinous condition when cool, and a few spoonfuls of this may be taken in place of a drink; when given as a drink it should be somewhat diluted. An objection is made that beef-tea is relaxing and increases the diarrhœa. This is true to some extent, but, as constipation is frequently a prominent symptom in typhoid fever in Australia, says the author, the objection does not hold good, and in any case the effect can easily be judged of. Giving concentrated meat essences or extracts, even if they are alleged to be pre-digested, is useless if not absolutely pernicious.

Veal broth or chicken broth may also be advantageously introduced and used in the same way. Mutton broth is bad, as it is difficult to free it from fat, and it is always apt to produce nausea and even vomiting. Thin arrowroot and maizena, judiciously employed, are valuable additions to the diet. Gruel, well strained, may be allowed where diarrhœa is not a prominent symptom. A new-laid egg may be beaten up with a little brandy and given occasionally.

With regard to beverages, says Mr. Lewers, aerated water and lemonade are most useful. Barley-water is insipid, but if the patient likes it there is, unquestionably, some slight nourishment to be derived from it. Lastly, pure water is an article too often forgotten or altogether withheld. It is difficult, he says, to get untrained nurses to administer water to a fever patient, but we should always bear in mind that at least half the diet in typhoid fever should be water, although the proportion must be determined in each particular case. Wine is totally unsuited to the diet of a typhoid-fever patient until, at least, convalescence is established, as it is apt to induce fermentation and acidity. Good brandy or whisky should always be used in preference.

All this, says Mr. Lewers, is doubtless old, yet the march along the road of artificial feeding has been so forced that it may not be amiss to pause and look back over the old roads built with the toil of years of patient observation. And it is, he says, in the direction of a suitable variation that we shall find the value of diet in disease, rather than in that of isolation or of looking to artificial agents of whose real action we have a limited knowledge.

Rowing as an Exercise.—The last number of the *Asclepiad* contains a lecture by Sir Benjamin Ward Richardson, entitled Health and Athletics, in which he says:

"Rowing, of which university men are so fond, is of all exercises the one which affects respiration. You will see a crew that has not yet been trained go out for active exercise, and as they get into the full swing of the work you will notice, if you are careful, how powerfully the breathing is affected. The breathing, you will see, is rapid; there is a sort of bluish pallor in the lips and face, and even when the act of rowing is stopped there is an out-of-breath condition which is felt, more or less, by all who have been doing the same work. Of course there are always differences in different rowers according to the build of the body. The man with a good large chest, and the tall man, the man who by a spirometer can show from two hundred and fifty to three hundred cubic inches without fatigue, will be infinitely less breathless than the man with a small chest and short body, and who can only blow two hundred to two hundred and fifty cubic inches; but more or less all will suffer, and the great danger of rowing lies in injury done to the respiration in the first instance. If I were to select from a body of young men, promiscuously brought together, those who were best for a rowing match, I could, by proper measurement of the breathing power, of the height of the body, of the size of the chest, pick out almost without question those men who would make, in the end, the best crews, although at the time not one of them had become trained to rowing practice; and this is, I think, what ought to be done in the selection of crews for great competitions, since it is very bad for a young man even to train into a practice which by excessive exercise shall impair the function of the lungs. I do not say this from any prejudice, and I do not wish to exaggerate in the least degree. The disease emphysema—that is, rupture of the air vesicles of the lungs—which some think they have noticed as consequent upon rowing, I can not say I have ever seen, and it is but honest to add that I have known an improved development of the breathing organs and of the capacity of the chest induced by moderate rowing. What I have seen, and what I would warn against, is an effect of rowing which shows itself in a persistent difficulty of breathing during the exercise, and which is followed by some shortness of breath in other efforts, such as walking and riding, playing at tennis or cricket, and such like exertions. Rowing, moreover, when it affects the breathing, is liable, secondarily, to cause disturbance of the circulation. The position of the rower in the boat is peculiar. His lower limbs are to a considerable extent fixed; his body is bent forward and then strongly backward, the chest being kept in full tension. During these acts there is a considerable strain thrown upon the valves of the heart. The blood which has to course over the arteries from the heart must ascend before it makes its way anywhere over the body; ascends over what the anatomists call the aortic arch, and be prevented from going back into the heart on the left side by three valves, which allow the blood to come forth from the center, but which, falling down, check it from being returned. But in the motion of rowing with the lungs charged with air, the blood rising through the arch is, in a sharp degree, thrown back upon the valves, much as occurs in water falling back on a tap, to which we give the name of the water hammer. So I have observed that in a man who has been briskly rowing the second sound of his heart, which is produced by closure of the three valves, is often accentuated, owing to the sudden pressure exerted by the column of blood. Now this is a very considerable strain. By the influx of blood the heart is made to work more laboriously; it has an extra pressure put upon it; it is quickened in its action, and the great elastic blood-vessel, or aorta itself, is unduly distended. So in rowing men there occasionally follows disturbance of the heart as well as of the breathing. The heart becomes unduly large and overactive, a state for which, in order to obtain recovery, the injured person may have to lie in a recumbent position for several months, and from which possibly he never entirely returns to health, but has an excitable state of the circulation when he is subjected to any particular strain or mental worry. Rowing, therefore, although a fine exercise, requires to be carried on with some prudence, and while I have not a word to say against it, but indeed very much enjoy the sight of it in a good contest, it is, I should like to intimate, an exertion which should never be persevered in if the signs of embarrassment, first of the respiration, and secondly of the circulation, are clearly felt and detected by those who practice it; for I doubt if there is any going back to health, in the strict sense of that term, when such signs are definitely pronounced and for a long time maintained."

The Late Dr. Alfred L. Loomis.—At a meeting of the New York Pathological Society held on February 13, 1895, the following resolutions on the death of Dr. Alfred L. Loomis were adopted and spread on the minutes, and the secretary was requested to send a copy of the same to the *Medical Record* and the *New York Medical Journal* for publication:

Whereas, It becomes our duty to announce the death of Dr. Alfred L. Loomis, a former president and for a long period a cherished member of the New York Pathological Society, therefore be it

Resolved, That this society desires to place on record its high estimation of those qualities for faithful, persistent, and skillful work which characterized all his efforts during more than a quarter of a century of active membership.

Resolved, That his minute and painstaking study of clinical facts in connection with pathological lesions, and his logical demonstrations of their practical significance, constantly proved his eminent fitness as a safe teacher and his high and rare qualifications as a leading authority.

Resolved, That his example of indefatigable labor in this society, his ever-ready willingness to advance its best interests by valuable contributions from his large experience, and his earnestness of purpose in extending its usefulness are grateful remembrances of his unselfish ardor, of his conscientious regard of duty, and of his earnest devotion to the highest aims of pathological research.

[Signed.]
George F. Shrady, M. D.,
Edward G. Janeway, M. D.,
John H. Hinton, M. D.

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 21st inst., the special order was a discussion on Amputations; a Statistical Study of Seven Hundred Cases from Eight Hospitals of this City.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 27th inst., a paper entitled The Treatment of Laryngeal Tuberculosis by the Appilcation and Submucous Injection of Beechwood Creosote, with a Description of an Automatic Laryngeal Syringe, will be read by Dr. Walter F. Chappell. Patients will be presented and new instruments and apparatus exhibited.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 28th inst., a paper on Cœliotomy for Puerperal Septicæmia will be read by Dr. Charles P. Noble, of Philadelphia. Cases will be reported and specimens and instruments presented.

The Remote Results of the Removal of the Uterus and of the Ovaries.—Dr. Ernest W. Cushing, of Boston, contributes an article on this subject to the *Boston Medical and Surgical Journal* for February 14th, in which he remarks that the question in regard to the removal of the uterus is a very important one. It is a subject which it is well to consider, he says, because it is one of the latest developments of surgery. It will be admitted now that the remote results of the removal of the uterus are good if it can save a woman from death by cancer, and about half of the patients are saved for three or four years, and something less than that are saved permanently. The question of removal of the uterus for fibroids has worked its way against opposition. Where the mortality used to be sixty per cent. it is now less than twenty per cent., and the best results give not over from six to ten per cent.; so that the removal of the uterus for myoma is now as well established as the removal of the ovary for ovarian tumor. Its increased safety and its advantage to suffering women are continually forcing surgeons to operate in cases where they would not have done so a few years ago; that is, the increasing knowledge of the bad effects of leaving myomata, such as complications which finally ensue from pressure on the ureters or on the intestine, from degeneration of one kind or another, from long-continued hæmorrhage, from complications of salpingitis, etc., have wrought such a change of opinion that surgeons are much readier to remove the uterus than they were a few years ago. Some, says the author, are going so far as to say that they will remove a fibroid of the size of a fist in order to guard against future growth and accidents. Now, however, by the development of surgery, it is found that by vaginal hysterectomy a small fibroid can be removed with ease and with practically complete safety. If, says Dr. Cushing, we can remove the little fibroids essentially without danger, there will not be any large fibroids, just as there ought not to be any large ovarian tumors in civilized communities. If it is safe enough for that, the question of removal of the uterus for prolapse arises. The difficulties of this operation, and all the different things that have been tried, are known. Now it is done by many, and laid down as a proper thing to do.

With regard to the remote bad results of the removal of the uterus and its appendages, says Dr. Cushing, the charges against it are, in the first place, the production of insanity; in the second place, the production of obesity; and, in the third place, loss of sexual desire. In regard to insanity, he says, it is a fact that various gynæcological operations are followed sometimes by insanity. The removal of the uterus is done for certain very definite indications. It is done for cancer, fibroids, or prolapse, or by the intention, when the tubes are badly diseased and the interior of the uterus inflamed from gonorrhœa, etc., of getting rid of the whole trouble at once; therefore, there are certain diseases which are, so to speak, mechanical; at any rate, not nervous. They can be seen and felt and demonstrated, and the patient knows what she is cured of after the operation.

In regard to the removal of the ovaries and the tubes, there are several different conditions. If the patient's tubes and ovaries are diseased, full of pus, and perhaps as large as potatoes; if there is high temperature, with chills, and the patient is likely to die, then they should be removed. What the remote effects are is of no consequence; the patient must be got out of immediate danger. Then comes the question of how much the patient is cured. A certain number of them continue to suffer, and it is partly owing to conditions which could not be helped at the time. There are different complications, and they require the operation to be done over again, and a great deal of that work, says the author, is gradually being done. Sufferings are caused by the fact that there is still some trouble which may require another operation.

There is another class of cases where there are cirrhotic ovaries. The great trouble is dysmenorrhœa. The patient suffers for years and her nervous system is broken down; it is the result of the long-continued injury to the nervous system and must not be laid up against the operation. There are some cases where the ovaries are removed for dysmenorrhœa for which there is a real anatomical basis, such as inflammation of the ovary, suppuration of the ovary, inflammation of the tube, or adhesions; these are removed for disease, not for dysmenorrhœa. They should be removed, says Dr. Cushing, and, if the patient is not entirely cured, it can not be helped.

Another cause of suffering that many attribute to disease of the ovary is varicocele of the pampiniform plexus It is apt to give rise to various sufferings, such as pain, pressure, and nervous and mental symptoms similar to those caused by varicócele in men. There are cases where the ovaries are removed for other kinds of nervous symptoms; for hystero-epilepsy, epilepsy coming on at the menstrual period and at no other time. Cases of insanity where the ovaries have been removed, with the result, in a certain proportion of cases, of curing the insanity, have always been, so far as the author knows, cases of anatomically demonstrable tubal or ovarian disease. The cure here is not on account of the removal of the ovaries, but on account of the removal of an inflamed and irritating mass, and it is possible that it might be something else than the ovary, and the removal of it might have the same effect. There are other cases where the ovaries have been removed for nymphomania and masturbation with the patient approaching idiocy. In regard to this whole subject, says Dr. Cushing, there is at present a sort of reaction in surgery. Dr. Polk, at the meeting of the Congress of American Physicians and Surgeons, called attention to the fact that removal of the appendages, which brought about the change of life, caused not only the temporary symptoms, flushings, and various miseries which women have to go through with some time, but it also brought about atrophy of the vagina and genitals in some cases, and a loss, in other cases, of sexual desire and feeling, which certainly is a serious matter. Dr. Goodell had also, says the author, started a paper in which he set forth the various woes and evils which might follow the removal of the appendages. The author's experience, however, has been very different from that of Dr. Goodell. He has found that in the vast majority of cases the ability, under proper circumstances, to have as much sexual feeling as the patients previously had is not impaired. His experience has been that the removal of the uterus has no more evil effects than the removal of the appendages alone, and that the removal of the appendages alone has, in itself, under very rare circumstances, caused a loss of sexual feeling—that is, of the capacity for sexual orgasm—which, he says, is to a certain extent to be regretted; but those instances are very rare. If we were to take a hundred women whose ovaries have been removed, he doubts very much whether we should get a much greater proportion who gradually lost their interest in sexual matters than in an equal number whose ovaries had not been removed.

THE NEW YORK MEDICAL JOURNAL, March 2, 1895.

Original Communications.

TOXIC HYPOLEUCOCYTOSIS.*

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The phenomenon which has attracted most attention in the pathology of the blood in recent years is that of inflammatory leucocytosis. That this delicate element of a fluid tissue, the leucocyte, should be able to muster within a few hours in quadruple or even sextuple numbers in the blood, is truly a matter to excite admiration or even incredulity.

It is the part that leucocytosis may play in the production of immunity which lends to the subject to-day one of its chief interests. That large numbers of these cells showed a tendency to surround all sorts of foreign bodies in their vicinity was a fact eagerly seized upon by adherents of the cellular theory of immunity, and soon became for them a chief factor in argument.

Naturally, investigation was first directed to the most pronounced example of this condition offered by disease, so that to-day more is known about leucocytosis in pneumonia than in any other malady. Beginning with the interpretation of the *crusta phlogistica* by Piorry (1) in 1839, and the first formulated theory of leucocytosis by Virchow (2) in 1871, in the last ten years a score of observers have been over the ground, and at present there is comparative unanimity in the interpretation of the variations of leucocytosis in pneumonia.

But the ready assumption of the phagocytic nature of leucocytosis by adherents of the cellular theory of immunity, and the evident importance of the phenomenon in the course and limitation of disease, elicit yearly new and varied theories of the origin and nature of leucocytosis.

Virchow's theory of simple proliferation first appeared. He presumed that a new formation of leucocytes occurred through simple proliferation in the lymph nodes, in the swollen bronchial nodes of pneumonia, in the hypertrophied chains of leucæmia, and through the general lymphadenitis of syphilis. He failed to explain, among other things, the failure of leucocytosis in pseudo-leucæmia, in typhoid fever, and in tuberculosis.

Roemer (3) attributes leucocytosis to the action of products of tissue metabolism and bacterial life, especially to alkali-protein. These products, he believes, reach the blood and lymph from their point of origin in the tissues, and exert a direct chemotactic and formative influence on the leucocytes. The formative influence acts in the circulating blood, and produces an increased number of leucocytes by the method of amitosis. By chemotaxis the new leucocytes are drawn into general or local circulation. That chemotaxis plays a part in the phenomena of leucocytosis is generally admitted, but that amitosis has been demonstrated as the method of origin of polynuclear leucocytes is denied by most histologists (Rieder (4)). Roemer's chemotactic theory stands, therefore, neither proved nor disproved.

Vom Limbeck's (5) theory of "exudation" is in partial agreement with Roemer's. He believes that chemical bacterial products cause a reaction on the part of the tissues, with exudation and leucocytosis. This reaction, which is to be regarded as Nature's effort at healing, is specially directed to the spleen, lymph nodes, and marrow, from which he holds the new leucocytes to be principally derived. Thus there are more leucocytes in the splenic vein than in the veins of the abdominal wall. Von Limbeck failed to prove that there were more leucocytes in the splenic vein than in other visceral veins; the relation between exudation and leucocytosis is not constant, and his theory does not explain hypoleucocytosis.

Since 1872 it has been known that the injection of curari into the blood caused a disappearance of leucocytes. Similar results were noted later after the injection of fibrin ferment, pus, peptone, etc. Finally, the same phenomenon was observed after injection of bacteria and their products (6). The great constancy with which the diminution precedes the increase of leucocytes impressed Lowit (6) with the idea of the essential character of this sequence, and led him to find in the impoverishment of the blood the cause of leucocytosis. The exact manner of the disappearance of the leucocytes he held to be an actual destruction or solution (leucocytolysis). The regeneration of the blood in hyperleucocytosis he referred to an increased activity of the blood-producing organs, the lymphocyte being the initial form in which the new cells reach the blood. Neither mitosis nor amitosis occurred with sufficient frequency in the circulating blood to account for the abundance of new leucocytes. During the stage of hypoleucocytosis Lowit proved that the diminution of leucocytes is general over the superficial vessels. He states that he found this diminution to prevail also in the central vessels, but the extent of his observations on this latter point he does not state. The numbers of leucocytes actually found in the central vessels, any comparisons he may have made with the normal numbers existing there, and the conditions under which he drew the specimens of blood, he does not report; but admits having found great variations in the condition of the central vessels. Schulz (7), therefore, finds in Lowit's statements no proof that the leucocytes are not increased in the central vessels while diminished at the surface. Moreover, Lowit fails to explain sufficiently why the new cells to be found in leucocytosis are multinuclear, while maintaining that the form in which they are produced by the organs is uninuclear. Finally, at no stage after the intravenous injection of bacteria does he find in the blood sufficient evidence of recent destruction of leucocytes.

Bieganski (8) has recently offered some new suggestions as to the nature of leucocytosis, based upon a study of the morphology of the leucocyte in the different stages of pneumonia. He believes that leucocytosis may be produced, first, by increased activity of the lymph nodes, as in syphilis and leucæmia. Second, it may be due to failure of development of lymphocytes into multinuclear cells. So there may be lymphocytosis without lymphatic hyperplasia. Third, leucocytosis may be due to the failure of further development of polynuclear forms and their consequent accumulation in the blood. In short, leucocytosis, according to Bieganski, is a result of the prolongation of the life history of leucocytes induced by bacterial products circulating in the blood. He calls attention to the sudden appearance of eosinophile cells and of blood plates after the disappearance of multinuclear leucocytes in pneumonia, and cites Zappert (9) and others to support the belief that eosinophile cells are older "fatty" forms of multinuclear leucocytes.

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* During the course of this work the writer has greatly profited by the many timely suggestions of Professor T. Mitchell Prudden.

The proof of his theories demands the previous settlement of nearly all the questions now open concerning the leucocyte. That a noxious bacterial poison should exert a preservative influence on the leucocyte it is not natural to suppose. The condition of the blood in leucæmia is not generally regarded as a leucocytosis; while in pseudo-leucæmia there is much lymphatic hyperplasia without leucocytosis. The multinuclear leucocyte, as stated by many authorities, may either break up into blood plates or develop into an eosinophile cell, but it certainly does not develop indifferently into both clements, and it is still doubtful if it is the forerunner of either. According to various observers, the blood plates may be preformed normal elements in the blood (Bizzozero (10)), or broken nuclei of multinuclear leucocytes (Lilienfeld (11)), or globulin particles (Lowit (6)); and the eosinophile cells may be older forms of multinuclear leucocytes (9), or a separate order of cells developed from the eosinophile elements of marrow (H. F. Müller (12), Goldscheider and Jacob (18)); but all these questions are far from solution.

An examination of the foregoing theories reveals in their foundation a very considerable amount of surmise associated with a moderate amount of proof. The incompleteness of our knowledge of chemotaxis; the assumption that all kinds of leucocytes are developmental forms in one series and not representatives of three different series (H. F. Müller (12), Foster (13)); the very capricious behavior of the leucocytes under various physiological as well as pathological conditions; especially the sudden appearance, in hyperleucocytosis, of enormous numbers of adult multinuclear elements—all these considerations might well raise a doubt as to the validity of our knowledge of leucocytosis. In view of the contradictory evidence, Schulz exclaims that "the whole subject of the existence and meaning of leucocytosis is still '*terra valde incognita*,' and demands extended experimental research." It was apparently this general view of the uncertain foundations of the subject that led Rieder (4) and Schulz (7) to maintain that no sudden increase in the sum total of leucocytes in the blood ever occurred in leucocytosis. As Rieder, at the close of his monograph, states this last view: "There is no definite evidence of an increased outpour of leucocytes from the blood-producing organs, still less of an increase of the same in the blood, nor of an abnormal gathering of wandering cells from the tissues. It must be regarded as much more probable that leucocytosis is not an increase of the sum total of leucocytes circulating in the blood, but only an abnormal distribution of those already existing in favor of the peripheral vessels." Schulz, examining the blood from peripheral and central vessels in dogs, guinea-pigs, and rabbits, was able to convince himself of the correctness of Rieder's hypothesis. During the stage of hyperleucocytosis in peripheral vessels he found no corresponding increase, and even demonstrated a decrease of leucocytes in the central vessels. Whatever may be said of his technique, which will be discussed later, at least an equal number of contrary results are necessary to disprove his position. The present study of the writer was intended to prove, by an independent series of experiments, the truth or falsity of the Rieder-Schulz theory. It was hoped by demonstrating the presence or absence of a change in the sum total of leucocytes in the circulating blood, to settle the question whether the present conception of leucocytosis is based on fact or upon unreliable experimental data.

Technique.—In order to determine the possible changes in the general distribution of leucocytes that may occur after intravenous injection of bacteria, specimens of blood were examined from the central vessels as well as from the peripheral veins, from which the estimation of leucocytosis is usually made. The microscopical examination of the organs was then demanded, to locate, if possible, the lodging place of the leucocytes found to disappear from the circulating blood after bacterial injections. Rabbits were chosen for the experiments because of the ease with which they are handled, and on account of their comparative freedom from physiological leucocytoses. The experiments of Schulz were repeated a number of times as he performed them, and later an endeavor was made to eradicate some of the features of his technique that were deemed incompatible with accurate results. Accordingly, some of the animals were killed by breaking up the medulla; the abdomen was rapidly opened, and five or six specimens of blood were drawn, by as many "mixers," from the central vessels. This procedure consumed in Schulz's hands usually not longer than fifteen minutes. The writer's specimens of blood were drawn, through a fine needle puncture, in from five to eight minutes after the animal was touched, and no specimen was drawn after the blood pressure became so markedly reduced that the blood failed to spurt from the vein or artery. Several rabbits had to be rejected on this account.

The method used in estimating the leucocytes was the same as employed by the writer in a previous study of the leucocytosis of pneumonia (14), and which, though more laborious, has in his hands given more uniform results than has the acetic-acid method. That the acetic-acid method proves extremely unreliable in the experience of others is well shown by some of Schulz's results, in which the estimates of the same vessels varied as much as two hundred and fifty per cent.

The Thoma-Zeiss erythrocytometer was used, the blood diluted a hundred times in three-per-cent. salt solution tinged with gentian violet, and the red cells were thus not dissolved. Changes in the number of red cells and blood plates were therefore regularly noted, and it was possible to detect appearances of the destruction of leucocytes by the media injected. An objection to this method is, of course, the comparatively small number of leucocytes actually counted. This defect was partly remedied either by drawing a double amount of blood into the pipette, making the dilution 1 to 50, or more frequently by using two counting chambers and counting a double field in each. The double field, though only partly inclosed by the lines of the Zeiss instrument, can be accurately followed without a mechanical stage, by counting over an extra quarter field on each side of the present body of four hundred squares. With a mechanical stage as many leucocytes can readily be counted as in the acetic-acid method.*

After drawing the specimens of blood, the liver, lungs and heart, kidney, spleen, and one femur were removed and hardened for microscopical examination in various agents—such as alcohol, forty to ninety-seven per cent; Müller's fluid; Lang's fluid; one per cent. bichloride of mercury; formalin, two, five, and ten per cent. The best preservation was obtained from alcohol, eighty per cent., replaced in twelve hours by ninety-seven per cent. The further procedure with the organs will be described under the report of the microscopical examination.

Dry preparations of the blood were made and stained, with or without heating, by saturated alcoholic solution of eosin and methyl blue or Gage's hæmatoxylin. Of these dry preparations it may be said only that they showed the typical forms described by Okintschitz (15) in normal rabbits' blood, and the great preponderance of uninuclear elements commonly found in hypoleucocytosis.

The order of the experiments was as follows: First, the normal number of leucocytes in the central vessels was determined in rabbits killed by breaking up the medulla, as no sufficient data on this question could be found. Following this, the same vessels were examined, at intervals of five minutes to two hours, after injecting into the middle-ear vein 0·5 to 1·5 cubic centimetres of a three weeks' old broth culture of *Bacillus pyocyaneus*. The injection of this medium was found to reduce the number of leucocytes in the opposite ear vein progressively for at least three hours. Finally, in view of the very great disturbance of the circulation likely to follow destruction of the medulla and immediate failure of respiration, the effect of deep ether narcosis on the blood of the large jugular vein was determined, and all these experiments were repeated on rabbits thus anæsthetized. To determine the effect of ether narcosis, the rabbit was rapidly bound to a frame and the internal jugular vein exposed by a few short incisions. The specimen of blood was then drawn from the vein and the animal immediately released. By completing this operation within ten minutes, the effects of cooling and exhaustion were practically avoided. At the end of a half hour the same animal was deeply etherized, and specimens were examined from the same vessel.

Effect of Ether on Leucocytes in the Jugular Vein. Leucocytes per Cubic Millimetre.

NUMBER.	Normal.	Fully etherized.
1	6,250 6,500	7,000 7,000
2	7,000 7,000	6,000 7,000
3	6,000 6,250	6,500 7,000

Leucocytes per Cubic Millimetre in Blood of Normal Veins.

I. EXAMINED AFTER RUPTURE OF MEDULLA.

Ear.	Portal.	Hepatic.	Small mesenteric.	Splenic.	Superior vena cava.	Inferior vena cava.
10,000	10,000	7,500	8,500	......	7,500	......
9,800	......	4,500	9,250	......	.....	......
10,500	......	4,500	12,000	......	6,000	......
10,000	9,000	9,000	.....	9,000	6,500	......
11,000	13,000	13,500	.....	12,000	8,000	......
12,000	13,000	7,000	.....	13,000	6,000	* 6,800
12,000	......	10,500	9,000	14,000	7,000	......
11,500	......	......	12,000	13,500	6,000	......
11,000	......	10,000	10,500	12,500	6,000	5,500
11,250	......	12,500	7,000	12,000	5,000	......

II. EXAMINED UNDER ETHER.

						Renal.
8,000	......	......	10,000	11,500	5,500	7,000
7,000	......	......	9,500	......	.....	5,000
9,000	......	9,500	10,500	11,000	5,000	......
12,000	......	† 7,500	.....	......	.....	......
8,000	......	4,500	.....	......	.....	......
6,500	......	3,500	.....	......	......	......

* Hepatic vein close to vena cava. † Puncture of liver.

Leucocytes per Cubic Millimetre in Blood of Veins after Injection of Bacillus Pyocyaneus.

I. AFTER RUPTURE OF MEDULLA.

Ear vein, before injections.	Ear vein, after injections.	Hepatic.	Mesenteric.	Splenic.	Superior vena cava.	Inferior vena cava.	Puncture of liver.	Time of examination after injection.
12,000	3,000	3,000	4,000	6,500	2,500	.....	......	2 hours.
12,500	2,000	1,500	3,000	5,500	1,750	1,500	......	2 hours.
7,500	3,000	5,500	2,500	5,500	2,250	4,000	......	2 hours.
10,000	500 500	1,000	1,000	2,000	1,250	2,000	......	2 hours.
10,000	15,000	.....	2,500	.....	2,000	.....	......	2 hours.

II. EXAMINED UNDER ETHER.

						Renal.		
......	......	.....	.....	.....	.....	.....	2,500	10 min.
8,000	5,000	.....	3,500	2,500	.....	3,500	3,000	15 min.
10,000	4,500	.....	3,000	2,500	.....	2,250	3,500	15 to 20 min.
8,000	2,500	.....	4,000	8,000	.....	3,250	10,000	30 min.; liver puncture after death.
10,000	5,250	.....	.....	4,500	.....	.....	3,000	30 min.
7,000	2,000	.....	2,000	2,250	1,500	.....	2,500	30 min.
7,000	2,000	.....	2,000	1,000	.....	1,000	1,250	30 min.
7,000	2,500	.....	2,000	1,250	.....	2,000	1,000	1 h. 30 min.
7,500	500	.....	1,000	....	.....	.....	......	2 h. 20 min.

Leucocytes per Cubic Millimetre in Blood of Normal Arteries.

I. AFTER RUPTURE OF MEDULLA.

Ear vein.	Small mesenteric.	Splenic.	AORTA.		Renal.
			Arch.	Abdominal.	
10,000	3,500	......	3,000	5,000	....
7,500	......	......	2,500	2,500	....

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* See Eilzholz, *Wien. klin. Woch.*, 1894, No. 32.

II. EXAMINED UNDER ETHER.

Ear vein.	Small mesenteric.	Splenic.	AORTA.		Renal.
			Arch.	Abdominal.	
12,000	4,500	7,500	4,500	......	....
8,000	8,500	5,250	4,000	5,000	5,000
8,000	8,000	6,500	3,000	3,500	4,500
6,500	7,000	7,000	......	......	9,000

Leucocytes per Cubic Millimetre in Blood of Arteries after Injections.

I. AFTER RUPTURE OF MEDULLA.

Ear vein, before injection.	Ear vein, after injection.	Small mesenteric.	Splenic.	Aorta, arch.	Aorta, abdominal.	Large mesenteric.	Renal.	Time.
8,500	2,500	2,500	1,500	1,500	2,000	.....	.....	1 hour.
10,000	1,500	1,500	1,750	1,750	1,750	.....	.....	2 hours.

II. EXAMINED UNDER ETHER.

Ear vein, before injection.	Ear vein, after injection.	Small mesenteric.	Splenic.	Aorta, arch.	Aorta, abdominal.	Large mesenteric.	Renal.	Time.
8,000	4,500	......	1,250	......	......	1,000	1,500	10 min.
12,500	5,000	2,000	1,500	......	2,000	.....	1,500	25 min.
10,000	5,000	......	2,500	......	.....	2,000	.....	30 min.
7,500	500	2,000	......	2,000	2,000	500 250	.....	2 h. 20 min.

It will be seen from the preceding tables that during the stage of hypoleucocytosis a uniform diminution of the leucocytes can be demonstrated in all parts of the arterial and venous circulation. Even following, in general, Schulz's own procedure, but drawing the blood from the vessels rather more rapidly than he did, and avoiding much of the change resulting from lowered blood pressure and stagnation of blood in the large veins—factors which apparently disturbed his estimates—this uniform diminution of leucocytes will be still found, and an opposite conclusion to his must be reached. When, however, results obtained in etherized rabbits are compared, this contrary conclusion becomes indisputable. The leucocytes can be found neither in the arteries nor in the veins. Indeed, after a careful examination of Schulz's published tables the writer is quite unable to draw from them any such conclusion as he deduces. Following three different methods, after rupture of the medulla, in chloroform narcosis, and with no anæsthetic, the normal animals he examined are too few to serve as a guide, and his estimates of the leucocytes in the central vessels are so widely divergent that any conclusion as to either increase or decrease is absolutely prohibited.

Destination of the Leucocytes in Hypoleucocytosis.—If, then, the leucocytes disappear, as it seems, from the circulating blood during hypoleucocytosis, one may rightly demand to know what becomes of them; nor is the proof of their disappearance complete until their destination has been established. The earliest clew to the fate of the leucocytes was furnished by Wyssokowitsch (16), when, in 1886, he found that injected bacteria rapidly disappeared from the blood, and were to be found by Gram's stain in the lumen of the capillaries and in the endothelial and fixed connective-tissue cells of the liver, spleen, and kidneys. In a further study of the same subject (17) he located the bacteria at the same points, but claimed that the leucocytes had taken no part in the process of transfer. In 1892 Werigo (18), without regard to the question of the disappearance of leucocytes from the circulation in hypoleucocytosis, found that in the capillaries of the liver, spleen, and kidneys there was a large increase of leucocytes within a few minutes after intravenous injection of bacteria. These leucocytes, or phagocytes, were apparently in the act of transporting bacteria to the endothelial cells of the hepatic capillaries. In many cases the leucocytes were so abundant as to form minute emboli in the capillaries. Similar appearances, less marked, were seen in the spleen and kidney. He also described the normal flat endothelial cells of the hepatic capillaries as much swollen, often partly occluding the lumen of the capillary, sending out protoplasmic processes to entangle the passing leucocytes. One or several leucocytes were sometimes seen completely englobed by the endothelial cells, forming a lenticular giant cell, the nuclei of which were strung along the capillary wall.

With these data in mind, the microscopical examination was made of the organs of the rabbits used in the preceding experiments. The tissues, having been hardened as described, were imbedded in celloidin, and sections were cut of a uniform thickness of one two hundredth of a millimetre, and stained with hæmatoxylon and eosin by Gram's method, and by Loeffler's alkaline methyl blue. As a control, the organs of normal rabbits were first examined. In the normal livers the writer found the capillaries to present all the appearances Werigo describes after the injection of bacteria, except thrombi in the vessels and bacteria in the cells. Many of the endothelial cells were quite flat, their bodies invisible, and their nuclei projecting characteristically into the lumen of the capillary. Many others, however, were much thicker, occupying a large part of the capillary lumen, containing often pigment granules, apparently sending processes out into the capillaries. All stages of the so-called "giant cells" were seen, from a single well-defined leucocyte adherent to an endothelial cell to a long protoplasmic mass containing a half dozen nuclei. These appearances were too uniform and distinct to be regarded as artifacts, and were seen in every one of nine apparently normal cases examined.

On comparing sections of normal livers with those of the animals killed after injection of bacteria, it was not easy to convince one's self that there was any increase in the number of leucocytes in the capillaries. Only once was such an increase unmistakable, when numerous small thrombi were found, each containing twenty to a hundred polynuclear leucocytes. But such thrombi, having occurred once in twenty cases examined, might reasonably be rejected as evidence of an invariable increase of leucocytes.

The swelling of the endothelial cells seemed rather more marked and more frequent than in the normal livers, but even after two hours many endothelial cells remained quite flat and seemed entirely unaffected by the influences which had caused such great changes in their immediate neighbors. Such features gradually became so striking as to suggest some real difference in character between the swollen and the flat cells. A thorough search over sections of the liver and other organs, stained by Gram's method or by Loeffler's methyl blue, very seldom revealed any bacteria within the leucocytes or endothelial cells. This negative result may be partly explained by the comparatively small quantity of the culture injected. No evidence was found of either mitotic or amitotic division of leucocytes.

A comparison of the general appearance of the liver tissue before and after injection failing to give satisfactory evidence of a uniform increase of leucocytes, it was decided to make a count of their numbers in the cubic millimetre of hardened tissue. For this purpose a mechanical stage and a Zeiss one-twelfth immersion lens were used, and the leucocytes in one square millimetre of each section were counted. The sections being one two-hundredth millimetre in thickness, the result of the count was multiplied by two hundred, which gave the number of leucocytes in one cubic millimetre of tissue. An attempt was made to count the leucocytes in the small arteries and veins before and after injections, but the results were so nearly equal in the two cases that no conclusions were possible.

An examination of the subjoined tables will show that, according to this method of estimate, there was a steady increase of leucocytes in the hepatic capillaries for at least two hours after the injection of *Bacillus pyocyaneus* into the ear vein. During the same period a marked diminution of leucocytes had been demonstrated in the circulating blood. In four instances two cubic centimetres of the sediment from a three-days-old broth culture of *Bacillus anthracis* was injected, instead of the smaller quantity of *Bacillus pyocyaneus.*

Leucocytes per Cubic Millimetre of Liver Tissue.

I. NORMAL LIVERS.

Ear vein, before injections.	Ear vein, after injections.	Leucocytes per cubic millimetre.	Injection.	Time of examination after injection.
7,500	......	23,000	....	....
12,000	......	12,500	....	....
8,000	......	20,000	....	....
8,000	......	16,000	....	....
6,500	......	20,000	....	....
7,000	......	10,200	....	....
8,500	......	12,600	....	....
8,000	......	19,600	....	....
11,000	......	22,800	....	....

II. AFTER INJECTIONS.

Ear vein, before injections.	Ear vein, after injections.	Leucocytes per cubic millimetre.	Injection.	Time of examination after injection.
......	......	33,500	Anthrax.	2 min.
......	......	35,000	“	6 min.
8,000	4,500	38,000	Pyocyaneus.	7 min.; thrombi.
8,000	4,500	34,000	“	10 min.
......	......	42,500	Anthrax.	20 min.
8,000	5,000	29,400	Pyocyaneus.	15 min.
12,500	5,000	26,600	“	25 min.
10,000	4,500	34,000	“	30 min.
7,000	2,000	35,000	“	30 min.
8,000	2,500	37,000	“	30 min.
10,000	5,000	51,000	“	30 min.
7,000	2,500	51,500	“	1 h. 30 min.
8,500	3,000	58,000	“	1 h. 30 min.
12,000	3,000	57,000	“	2 hours.
12,500	2,000	55,000	“	2 hours.
7,500	3,000	41,000	....	2 hours.

The examination of the lungs was made in the majority of cases without previous inflation, as it seemed probable that such treatment would disturb the condition of the capillaries. From a general survey of sections from the lungs prepared in this way, it appeared probable that the pulmonary capillaries contained many more leucocytes after the injections, but any attempt at a numerical comparison was quite impossible. The lungs in the remaining cases were therefore slowly distended with forty-per-cent. alcohol to rather less than their normal size in expiration, and from sections of the organs thus prepared the number of leucocytes in the cubic millimetre was computed as described for the liver. The separation of the nuclei of leucocytes from those of other cells in the pulmonary parenchyma was often difficult and sometimes impossible, but the total error from this source is believed not to seriously affect the comparisons. The injections of *Bacillus anthracis* affected the lungs more powerfully than did *Bacillus pyocyaneus*, the former producing many minute thrombi in the distended capillaries. In the capillary endothelium no changes could be discerned such as were constantly found in the liver.

Leucocytes per Cubic Millimetre of Lung Tissue.

I. NORMAL LUNGS.

Ear vein, before injections.	Ear vein, after injections.	Leucocytes per cubic millimetre.	Injection.	Time of examination.
7,000	......	40,600	....	....
8,000	......	42,000	....	....
8,000	......	37,800	....	....
11,000	......	41,000	....	....

II. LUNGS AFTER INJECTION.

Ear vein, before injections.	Ear vein, after injections.	Leucocytes per cubic millimetre.	Injection.	Time of examination.
......	......	98,000	Anthrax.	6 min.; thrombi.
......	......	111,400	“	20 min.; thrombi.
8,000	5,000	42,000	Pyocyaneus.	15 min.
12,500	5,000	85,000	“	25 min.

In the kidney no changes could be discovered in the endothelial or fixed connective-tissue cells, capillary vessels, Malpighian tufts, or larger arteries or veins. The multinuclear leucocytes were counted in twenty Malpighian tufts in each of five normal kidneys and in five cases after injections. Only multinuclear leucocytes were here counted, because of a difficulty experienced in distinguishing the nuclei of lymphocytes from the short spherical nuclei of the endothelial cells.

Multinuclear Leucocytes in Malpighian Tufts of Kidneys.

I. NORMAL KIDNEYS.

Ear vein, before injections.	Ear vein, after injections.	Leucocytes in twenty tufts.	Injection.	Time of examination.
8,000	......	28	....	....
6,500	......	27	....	....
8,000	......	36	....	....
7,000	......	24	....	....
7,500	......	26	....	....

II. AFTER INJECTIONS.

Ear vein, before injections.	Ear vein, after injections.	Leucocytes in twenty tufts.	Injection.	Time of examination.
8,000	4,500	18	Pyocyaneus.	10 min.
8,000	5,000	12	“	15 min.
12,500	5,000	18	“	20 min.
......	......	26	Anthrax.	20 min.
7,000	2,500	30	Pyocyaneus.	90 min.

In the marrow of the femur the leucocytes in the capillaries were often slightly increased in numbers, and rather more of the large uninuclear elements of the marrow appeared to be free in the circulation, but the extent and constancy of these changes were not very manifest. The examination of the spleen did not give convincing evidence either for or against an increase of leucocytes, although pulp cells, endothelial cells, and sections of blood in vessels were carefully compared. The anæmic condition of the spleen found after the injection of bacteria must stand as strong presumptive evidence against any immediate increase of leucocytes in this organ.

Leucocytolysis.—There remains the question of an actual destruction of leucocytes in the circulating blood by bacterial products, and of its importance in accounting for the disappearance of these cells in hypoleucocytosis. Most investigators have failed to find in the blood definite traces of the solution of leucocytes. The weight of opinion is against the belief that the blood plates are products of the disintegration of multinuclear leucocytes. It is possible, however, that among the multitude of irregularly defined granules constantly met with in the routine of blood examinations some may be products of the disintegration of leucocytes. Among the authorities who maintain that actual destruction of leucocytes is a factor in their disappearance in hypoleucocytosis may be mentioned Lowit, Roemer, S. S. Botkin, Holtzmann, E. Botkin, *et al.* (19). That no such destruction occurs in the blood is more or less strictly held by Schulz, Rieder, Werigo, Medwedeff, Goldscheider and Jacob (19). Since the publication of E. Botkin's (19) experiments on the solubility of leucocytes in peptone there remains little doubt that injection of bacterial products directly into the circulation may destroy a considerable number of leucocytes.

Botkin treated pus with solutions of peptone, and was able to follow, under the microscope, the changes that occurred in the leucocytes. Within fifteen minutes after treatment with peptone the granules began to disappear from the protoplasm of the leucocytes; they became translucent, finally invisible, while the nuclei lost their color and gradually fell in pieces. In twenty-four hours eighty per cent. of the leucocytes in the mixture had disappeared.

Throughout the present work, after the injections, granular particles were constantly found in the blood, which might equally well have been regarded as deformed blood plates, or as fragments of the nuclei of leucocytes. These granules were more abundant if the blood was allowed to stand in the mixer for an hour. In such specimens fragmentation and complete solution of the protoplasm of leucocytes could be plainly followed, while the nuclei, more difficult of solution, were seen to break up into irregular, faintly stained granules. At the end of two hours a diminution in the number of leucocytes was regularly noted. After four hours this diminution became marked, and in some specimens, examined eighteen hours after drawing, it was impossible to find a single leucocyte among the clumps of developing bacilli.

No such changes occurred in the blood drawn from healthy rabbits before injection.

If the injections of one cubic centimetre of a broth culture of *Bacillus pyocyaneus* can in one hour so affect the blood that the solution of leucocytes can be discerned in the counting chamber, it is probable that the larger injections used by most experimenters have furthered the impoverishment of the blood by direct leucocytolysis. It seems probable also, from analogy, that the bacterial products thrown into the circulation at the onset of an acute disease like pneumonia must destroy a moderate number of leucocytes. But, since nearly complete disappearance of leucocytes from the blood can be produced by large injections within a few minutes, one must at present be content to regard leucocytolysis as only an accident in the course of hypoleucocytosis.

Summary.—1. Within eight minutes after rupture of the medulla in rabbits very little change occurs in the number of leucocytes in the blood of the central vessels.

2. Ether narcosis in rabbits has very little effect on the location of leucocytes in the circulating blood.

3. The view of Rieder and Schulz, that no change in the sum total of leucocytes in the blood ever occurs in leucocytosis, is incorrect, and may be disproved by examination of rabbits' blood in the stage of hypoleucocytosis, either after rupture of the medulla or, more conclusively, in ether narcosis.

4. After intravenous injection of certain bacteria and their products, the majority of the leucocytes, especially the multinuclear forms, disappear uniformly from all parts of the arterial and venous circulation.

5. The leucocytes that disappear after bacterial injections are to be found, more or less stationary, in the capillary vessels, especially in the lungs and liver.

6. The appearance of the endothelial cells of the hepatic capillaries indicates that these cells may take more than a passive part in detaining the leucocytes within that organ.

7. Leucocytolysis is apparently a secondary and unessential factor in the production of hypoleucocytosis.

8. It remains an open question whether hypoleucocytosis depends upon a simple mechanical sifting of swollen and cohesive leucocytes by the capillary endothelium or upon a determination of these leucocytes, by chemotactic influence, to specialized capillary endothelium in the viscera.

9. The appearance of the hepatic capillary endothelial cells, both before and after the injection of bacteria, points to a possible function of the liver as the physiological scavenger of the body, and, in pathological conditions, as a special organ of phagocytosis.

Addendum.—While the results of the present work were being prepared for publication, the extensive and valuable study of Goldscheider and Jacob (20) came under observation. Their experiments were specially suggested by the theories of Lowit and Schulz.

By injecting minute doses of a glycerin extract of the spleen they succeeded in producing marked increase in leucocytes without appreciable previous decrease.

They call attention to the remarkable variations in the numbers of leucocytes found by Schulz in the central veins, and discredit all his results because the specimens of blood were drawn after rupture of the medulla or other vitiating procedures. In two experiments they find the leucocytes diminish greatly in the ear vein immediately after rupture of the medulla, and infer, but do not attempt to prove, that there is a corresponding and simultaneous change in the central vessels. After convincing themselves that ether narcosis has no effect on the location of leucocytes, they examine the blood of three normal etherized rabbits in the stage of hypoleucocytosis and one in hyperleucocytosis, and thus attempt to combat the more numerous experiments of Schulz.

If Goldscheider and Jacob had proved that rupture of the medulla caused as pronounced and immediate a change in the central veins as it does in the ear vein, they might justly discredit Schulz's results. But the writer's experiments show that, if the operation is done within four to eight minutes, and before the blood pressure is markedly reduced, blood may be drawn from the central vessels before any appreciable change occurs in the number of leucocytes. Many of Schulz's specimens were taken within this time, and some of his operations were performed under chloroform. As to the actual data presented, the weight of evidence must still remain with Schulz.

One of the most valuable features of Goldscheider and Jacob's work is to be found in their report of the microscopical examination of the organs, by which they locate, principally in the pulmonary capillaries, the leucocytes that disappear after injections of bacteria. With one prominent exception, they failed to find in the liver the appearances described by Werigo, and conclude that this organ is little concerned in the phenomena of hypoleucocytosis.

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A Hitherto Unknown Symptom of Complete Facial Paralysis.—Goldzieher (*Rev. gén. d'ophthal.*, Jan. 31, 1894) considers that in all cases of complete facial paralysis, with paralysis of the velum palati, there is never any lacrymation on the paralyzed side, and the eye is perfectly dry.

LEFT HEMIPLEGIA

FOLLOWED BY LOSS OF THE DEEP AND SUPERFICIAL REFLEXES, CONSIDERABLE MUSCULAR ATROPHY, MARKED ANÆSTHESIA IN THE DISTAL PORTIONS OF THE LIMBS, LOSS OF FARADAIC IRRITABILITY, AND REACTION OF DEGENERATION OF THE MUSCLES ON THE PARALYZED SIDE.

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With Remarks by FREDERICK PETERSON, M. D.,
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Report of the Case by Dr. Eskridge.

The trophic disturbances found in the case which is reported in this paper differ so widely from those that usually occur in old hemiplegias of brain origin, that a full record of all the symptoms is demanded.

Some years ago Eisenlohr cited two cases of cerebral palsy in which atrophy and degenerative reaction occurred, and recently he has had opportunity to make autopsies in both of his cases, finding degeneration of the peripheral nerves to account for the trophic changes in the affected muscles (F. Peterson, *Journal of Nervous and Mental Diseases*, April, 1894, p. 263). Dr. C. A. Herter states that "in one case coming under his observation a woman aged seventy years, the patient had a series of slight apoplectic attacks, succeeded in time by complete paralysis of the right side of the body, face, arm, and leg, and complete motor aphasia; at the end of a week distinct atrophy of the muscles of the forearm was noticeable, and at the end of a month was very pronounced. The faradaic irritability of certain muscles of the forearm was very much reduced. The contractions were exceedingly sluggish, and the reaction of degeneration was undoubtedly present. The galvanic irritability of these muscles was somewhat diminished" (*ibid.*, p. 257). The literature relating to muscular degeneration following cerebral palsy in the adult is exceedingly meager, but the cases that are on record have not been made public in journals to which I at present have access. To make this case the more interesting, I have asked my friend, Dr. Frederick Peterson, of New York, to add any comments that he may see fit, together with the literature of the subject.

The patient, a Swedish widow woman, forty-two years of age, domestic by occupation, came to Colorado directly from Sweden in 1886. The father died of heart disease. The mother died, aged forty-two years, but the cause of her death is unknown. Other portions of the family history are negative. With the exception of an attack of measles when a small child, the patient enjoyed excellent health until she suffered from small-pox nine years ago. She apparently made a complete recovery from the latter and remained well for two years. In 1888, after having been exposed to the sun's rays, she suffered severely for some days from a headache and physical depression; but these symptoms soon passed off and she again felt as well as usual. In January, 1891, she had an attack of "the grip," and on the morning of January 25th, after convalescence had fairly set in, she was sitting in a chair, when she experienced a peculiar numb sensation in the left side of the head, face, and throughout the left side of the body, including the arm and leg.

The feeling alarmed her, and she attempted to stand, but found that her left leg was paralyzed, and about the same time she noticed that the left arm and the left side of the face were paretic. She is sure that consciousness was not affected. Within a few hours after the first appearance of the paralysis she was able to walk with slight assistance. For the next two or three years there was not much change in her condition, with the exception that the paresis passed away in the face. About two months ago she experienced considerable pain in the left leg below the knee, with more or less pain in the left knee and ankle joints. Since then she does not think she has been able to walk as well as before. The same numb sensation that she experienced in the left arm and leg in January, 1891, when her disability from paralysis began, still persists. She presents no distinct evidence of syphilis, denies alcoholic indulgence, and says she has never been subject to headache. Her speech has not been affected by the brain lesion.

The patient was admitted to the Arapahoe County Hospital, May 22, 1894. Examination, May 25th. She is able to walk with the assistance of a cane, but locomotion is very difficult on account of extreme weakness of the left leg. She exhibits no ataxia in any position that she assumes, but she is unable to bear much weight on the left leg. The flexors and extensors of the left ankle are completely paralyzed, and the only movement that she can exert with the left foot is slight flexion of the great toe. The extensors of the left knee are too weak to extend the leg when she is sitting, and the flexors of this joint are extremely weak. The flexors of the left hip are absolutely powerless, and the extensors almost so. All movements of the right leg and foot are normal and vigorous. Dyn. R. 120; L. 60. Flexors and extensors of the left hand are weak, those of the elbow fairly strong, and the muscles of the left shoulder are but little weaker than those of the right. All the muscles of the right hand and arm are strong. There is little or no perceptible weakness of the muscles of the left side of the face. The tongue is protruded in the median line. Knee jerks: R., increased; L., absent. Ankle clonus absent. Reflex of the tendo Achillis: R., absent; L., absent. Plantar reflexes absent. Abdominal reflexes: R., present; L., absent. Reflexes of extensor muscles of forearms: R., increased; L., absent. Biceps: R., increased; L., lessened. Triceps about normal. Measurements in inches—Calf: R., $13\frac{1}{2}$; L., $12\frac{1}{8}$. Just above knee: R., 16; L., $14\frac{1}{2}$. Forearm: R., $10\frac{7}{8}$; L., 10. Biceps: lax—R., 12; L., $11\frac{1}{2}$; contracted—R., $13\frac{1}{2}$; L., $12\frac{3}{8}$. All the muscles of the left leg are soft and nearly flaccid.

Tactile Sense.—She is unable to recognize the contact of a feather on the left leg from the knee downward, including the foot and ankle. Over the left thigh this sense is present, but much less acute than it is on the right side. Over the palmar surface of the left hand and the dorsal surface of the fingers tactile sense is nearly lost. It is also much impaired from the elbow downward, but not nearly so greatly as it is in the left leg. Over the entire left side of the trunk there is lessening of the acuity of tactile sense, with delay in rapidity of conduction of tactile impressions, but in no portion of the trunk, around the anus, or over the external genitalia, are there any spots of tactile anæsthesia. In the left arm from the elbow upward and over the left side of the neck, face, and head there is perceived a slight impairment of tactile sense; but this can only be recognized by comparing these areas with the corresponding ones on the opposite side. Tactile sense is normal on the right side. Temperature sense is perverted most markedly where tactile sense is most disturbed. Both warm and cool substances give an impression of cold at first. After warm substances have been in contact with the skin for several seconds she then says that they feel warm. There is a slight perversion with a delay of temperature sense throughout the left side of the body. Localization sense is nearly normal, but slightly perverted over the left foot and ankle. Pain sense is most perverted over the anæsthetic areas, but on no portion of the body is it absent. Pressure and joint senses normal. It is impossible to test muscular sense in the affected parts on account of the extreme degree of paralysis. All sensory phenomena are normal on the right side. Eyes: R. V. = $\frac{20}{30}$; L. V. = $\frac{20}{30}$. Pupils equal and react to light and accommodation. Fields normal, except slight narrowing of the nasal side of the left eye. No weakening of the external ocular muscles. Fundi and discs nearly normal. There is no disturbance in taste, smell, and hearing. Muscular response to faradaic current (the large size Flemming battery was used). Tibialis anticus: R., I plus $2\frac{1}{2}$; L. will not respond to the strongest current. Peroneus group: R., I plus $2\frac{1}{2}$; L., no response to strongest current. Extensor longus digitorum: R., II; L., no reaction to strongest current. Posterior tibial group: R., I plus 4; L., III. Rectus femoris: R., I plus $2\frac{3}{4}$; L., no response to strongest current. Posterior thigh group: R., II plus $1\frac{1}{4}$; L., IV plus $1\frac{3}{4}$. Flexors of wrist: R., I; L., I plus 2. Extensors of wrist: R., I plus $2\frac{1}{2}$; L., I plus $4\frac{1}{2}$. Triceps: R., I plus $\frac{1}{2}$; L., I plus 2. Biceps: R., I; L., II. Deltoid: R., I plus 3; L., I plus 3. Reactions to the galvanic current—Tibialis anticus: K Cl C, R., 5 mil.; L., 30 mil., no response. An O C, R., $6\frac{1}{2}$ mil.; L., 30 mil., no response. Peroneus group: K Cl C, R., 4 mil.; L., 25 mil. An O C, R., 5 mil.; L., 20 mil. Extensor longus digitorum: K Cl C, R., 6 mil.; L., 30 mil., no response. An O C, R., 7 mil.; L., 30 mil., no response. Posterior tibial group: K Cl C, R., 6 mil.; L., 15 mil. An O C, R., 7 mil; L., 12 mil. Rectus femoris: K Cl C, R., 8 mil.; L., 30 mil., no response. An O C, R., 10 mil.; L., 30 mil., no response. Extensors of wrist: K Cl C, R., 4 mil.; L., 6 mil. An O C, R., 6 mil.; L., 7 mil. Flexors of wrist: K Cl C, R., $3\frac{1}{2}$ mil.; L., 5 mil. An O C, R., $5\frac{1}{2}$ mil.; L., 6 mil. Triceps: K Cl C, R., 4 mil.; L., $4\frac{1}{2}$ mil. An O C, R., 6 mil.; L., 6 mil. Biceps: K Cl C, R., 4 mil.; L., $4\frac{1}{2}$ mil. An O C, R., 6 mil.; L., 6 mil. Deltoid: K Cl C, R., 5 mil.; L., 5 mil. An O C, R., $6\frac{1}{2}$ mil.; L., 6 mil.

The cause of the hemiplegia in this case is probably thrombotic occlusion of the arteries supplying the right internal capsule, and the muscular atrophy with the electrical changes and loss of myotatic irritability have been the result of unilateral multiple neuritis. The case would possess greater interest if it had been under intelligent observation from the onset of the hemiplegic symptoms until the present. In the absence of a complete history it must be uncertain whether the neuritis dates from the time near the occurrence of the cerebral paralysis or from March, 1894—a little more than three years subsequently, when she experienced considerable pain in the left leg below the knee with more or less pain in the left knee and ankle joints. She does not think she has been able to walk as well since March, 1894, as she was previously, and she does not know when the wasting of the left leg and arm began.

REMARKS OF DR. PETERSON.

In the great majority of cases of hemiplegia there is no atrophy of muscles on the affected side. Sometimes we note a slight diminution in the size of the limbs involved, but this is merely from inactivity and disuse. It is not a true trophic change.

In certain rare cases, however, the diminution in size is so marked as to merit the name of an actual atrophy. These cases, one of which is described above by Dr. Eskridge, are so rare that, out of many hundreds of hemiplegiacs observed by me, I can recall but three or four in which the paralysis was accompanied by amyotrophy. Darkschewitsch (1) found six out of fifty-nine cases of hemiplegia examined for this purpose presenting muscular atrophies.

The behavior of the muscles in electrical examination is of considerable interest, because reaction of degeneration has always been one of our most trusted means for differentiating the two kinds of paralysis due to lesions in the cortico-spinal and spino-muscular portions of the motor tract. Now, in some of these cerebral amyotrophies there is a change in the electrical reactions, but this change must be looked upon as exceedingly rare even in these cases. As a rule, we shall find perfectly normal reactions as regards quantity and quality, whether to faradism or galvanism, in these cases of cerebral amyotrophy. The muscular atrophies from cerebral lesions behave in this respect very much like atrophies from joint lesions, the so-called arthropathic amyotrophies. But in a certain small minority of cases we may find some electrical changes, usually quantitative, very seldom qualitative.

As long ago as 1887 Wernicke (2) called attention to the diminution of faradaic and galvanic irritability on the paralyzed side in hemiplegia with hemianæsthesia. Even before that, Erb, in his book on electricity, had noted the occasional occurrence of diminished excitability in hemiplegic cases. Quincke (3) found very slight diminution of electrical irritability in his cases. In the six cases of Darkschewitsch the electric reactions were normal in four, and there was merely a quantitative reduction to faradism and galvanism in the other two cases. Eisenlohr (4) reported both quantitative and qualitative changes—in fact, complete reaction of degeneration—in his first case.

It is therefore proper to conclude that a reaction of degeneration in a case of cerebral amyotrophy is an extremely rare phenomenon.

What is perhaps of greater interest and importance in such cases is the origin of the atrophy. This is still a mystery, and one well worth solving. Various theories have been advanced to explain it, such as the following:

1. That there are trophic centers in the motor cortical area (Quincke).
2. That there are changes in the ganglion cells of the anterior horns (Charcot, Leyden, Brissaud (5), Joffroy, and Achard).
3. That the atrophy is due to peripheral neuritis (Déjérine, Eskridge).
4. That the wasting is explicable on the ground of deficient nutrition due to purely vaso-motor changes and diminished circulation (Roth and Muratow).
5. That there are functional disturbances in the spinal trophic centers due to dynamic influences from the lesion above.
6. That there are functional disturbances in the spinal trophic centers due to dynamic influences of a reflex kind from below along sensory paths.

Now, as to the results of autopsies in such cases, there are but few good data at hand.

As to the *cerebral lesions* in such cases, they vary in site, but are mostly about the internal capsule and optic thalamus.

There is usually descending degeneration of the *pyramidal tract* involved.

The ganglion cells of the *anterior horns* were found normal in one case by Quincke, in two by Eisenlohr, in one by Steiner (6), and in one by Darkschewitsch. The ganglion cells of the anterior horns were affected in two cases reported by Joffroy and Achard (7).

The *anterior roots* were examined by Darkschewitsch and Steiner in their cases and were normal.

The *peripheral nerves* were normal in all the cases where they were examined. Positive statements to this effect are made by Darkschewitsch and Steiner. Eisenlohr found slight simple degeneration in some of the peripheral nerves. This should not be called a neuritis.

The *muscles* themselves, examined by Darkschewitsch, presented a simple, not a degenerative, atrophy.

Thus we may say that in four of the six autopsies here described there were none of the anatomical changes in the spino-muscular portion of the motor tract usually incident to amyotrophy. This is corroborated by four careful observers. The joint research of Joffroy and Achard, in which they describe changes in the anterior horns, stands alone in this respect.

It is worth while to consider, in connection with the cerebral amyotrophies of adults, the enormous retardation in growth of the affected extremities in infantile cerebral palsies. The paralyzed members grow, of course, as the child waxes in years, but the striking difference between the two sides can be explained only in one of two or three ways: Either there are trophic centers in the brain affected by the lesion, or the cerebral disorder influences dynamically the trophic centers in the spinal cord, or the retardation in growth may be due to vaso-motor disturbances and insufficient blood-supply on the side involved.

A peculiar feature, too, of the cerebral amyotrophies of adults to which Darkschewitsch has called attention is the occurrence of actual arthropathies in many cases of hemiplegia, and the coincident muscular atrophies in some of such cases may be considered as joint atrophies after all. It will be noted that the case recorded by Dr. Eskridge presented evidences of arthropathic conditions in the knee and ankle joints of the paralyzed side.

Altogether, then, we may infer that there are as yet no conclusive data upon which to found a tenable theory as to the origin of muscular atrophy in hemiplegia.

A clinical fact worth remembering is that, as a rule, the amyotrophy comes on very rapidly and early after the onset of the hemiplegia, being sometimes noteworthy within two days.

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Note.—Since this article was set up an interesting case of cerebral amyotrophy from a meningo-cortical tumor has been recorded in the February number of the *American Journal of the Medical Sciences.*

INSOMNIA IN SURGERY, AND ITS TREATMENT.

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In the practice of general surgery we are constantly called upon to relieve insomnia due to a variety of causes that may be roughly classified as follows:

1. Nervousness due to fear of operation.
2. Depreciated nervous conditions due to exhausting diseases and to pain.
3. Post-operative nervous influences.
4. The influence of certain special surgical diseases.
5. Complicating pathological nervous disorders.

It were easy enough to extend this list or to alter it in many ways, yet it will serve our purpose, since practically all forms of insomnia observed in the practice of surgery will be found to bear an ætiological relation to one or more of these causes.

It may at first sight appear trivial to insist upon the insomnia due to fear of operative interference. We have all observed it, nay, we all expect it in a certain proportion of our patients. But the question is whether we pay enough attention to it, and whether we realize that efforts made to relieve it are rewarded by better results.

The nervousness and fear experienced by many patients after learning that an operation is necessary is often a source of truly cruel suffering, to which men are, as a rule, quite as subject as women. The surgeon who merely tells his patient that an operation is imperative, that it is to be performed at a certain time, and who, after a few words of encouragement, departs without a thought about the nervous condition of the patient, often fails in what is his chief mission—the prevention of suffering.

If about to be operated on within a day or two, the patient, if of a nervous and fretful disposition, will lie awake most of the night thinking about operations, pain, and death, evolving grewsome horrors from his sensitive mind, listening to the beating of his heart, suddenly become perfectly audible, and wishing at times for a speedy death to relieve at once the terrors that are so greatly magnified in the stillness of the night.

In the morning, of course, his general condition is worse than on the previous day; he will take the anæsthetic badly, and sometimes, after the operation, will suffer from shock in a manner entirely unexpected by the surgeon. Nor is this picture an exaggerated one, as all surgeons of experience will testify.

Such a state of things is unnecessary, and hence inexcusable. The patient should have been made to sleep. Watch the effect of your decision upon him. If the pulse becomes more rapid, if the face flushes, if he looks frankly scared, or if he merely assumes a dogged appearance, looking fixedly upon one point, wrinkling his brow, clenching one or both fists, the probabilities are great that his sleep will have to be eked out with a hypnotic. Other patients will endeavor to conceal their fear and nervousness, yet this is commonly easy enough to detect. The intensity of these feelings is often shown by the statements so generally made after operations, that "it was not half so bad as I expected," that they "felt nothing at all."

Fear of operation in pre-anæsthetic days has actually caused death. This fear is naturally no longer experienced in the degree observed a few generations ago, yet it is an important factor in some cases, and hence demands treatment.

Where pain is not the principal factor I know of no better hypnotic for this purpose than trional, to which I give the preference on account of its comparatively rapid action, of its lack of after-effects, and of the deep and restful sleep it induces. I am in the habit of ordering a fifteen-grain dose, to be repeated if necessary by another one within an hour. The patients awake refreshed, are apt to be more hopeful, and are in every respect better subjects for operation than those who have been allowed to spend the night in demoralizing wakefulness.

In cases of long-continued exhaustion and pain, as in suppurative and other diseases, the surgeon always attempts, if time allows, to improve the general condition of the patient before resorting to an operation. In such cases there often exists a severe degree of insomnia, and trional will often have the happiest effects. Chloral, while it is probably the most effective drug known for producing sleep, is a depressant of the heart, and must therefore be avoided in all chronic diseases which have caused general exhaustion. In some conditions constant pain is apt to lead one to think that nothing but morphine will serve to induce sleep. This is an error in many cases. Pain, long continued, becomes a habit to a certain extent, and many patients are able to eliminate it, as it were, from the causes that produce insomnia if their restlessness and nervousness can be quieted. The writer, while suffering intensely from a dissection wound, was readily made to sleep with thirty grains of trional, notwithstanding the throbbing pain left after deep incision of the phlegmon. Hence, while trional has no direct influence upon the relief of pain, it will often prove useful in inducing sleep.

The third class of causes which I have mentioned—namely, post-operative nervous influences—is an important one. For the relief of pain after operation, morphine subcutaneously is undoubtedly frequently indicated, but there are many instances in which pain is not a very important factor in post-operative nervousness and agitation. There is at times a semi-hysterical condition, a restlessness and jactitation that are quite detrimental to the patient, and which occasionally would seem to represent a state of relaxation occurring in nerves that have been highly strung by fear, suffering, and the many other mental and bodily influences that the patient has been submitted to. This condition, occurring without serious evidence of shock, is often happily relieved by trional in moderate doses. Its use causes no depression of vitality, and, when given after the period of nausea has ceased, brings about a pleasant sleep that is highly beneficial to the patient.

The influence of certain special surgical conditions is one that is well recognized. It is probably best marked in the genito-urinary diseases of men. The insomnia, restlessness, and jactitation so frequently observed after urethrotomies, whether internal or external, are often decidedly amenable to the influence of the milder hypnotics, among which I give trional the preference. I have administered this drug in at least three cases of external urethrotomy, and in a number of internal urethrotomies. It should be remembered that there is no operative procedure upon the urethra, however mild, including the mere passage of metallic sounds, that may not, in some individuals, be followed by severe nervous manifestations. And these manifestations are frequently quite independent of so-called urethral fever. In the case of a comparatively trivial urethral operation it matters not very much whether the patient has one sleepless night, as far as the ultimate result is concerned, but he will be very apt to have a good opinion of a surgeon who gives him a good night's sleep. In the more serious operations upon the urethra or the bladder I commonly operate in the morning, giving half an hour before the anæsthesia a hypodermic of morphine. This keeps the patient comparatively free from pain during the day, at the close of which I order twenty to thirty grains of trional. The probabilities are strong that the patient will sleep reasonably well, and that thereafter morphine will no longer be needed. If, on the other hand—and this is true of every operation—we give morphine after a procedure involving any degree, however slight, of after-pain, the patient will be sure to insist upon it on succeeding nights.

This nervous condition is often present after operations for piles, and may at times be seen as severely marked after the mere snipping off of a small hæmorrhoid as after a Whitehead operation.

Abdominal sections, in which thirst is so apt to complicate the other nervous disturbances, are also very frequently followed by insomnia of a more or less severe type. In two instances trional by the rectum has, in my hands, proved quite successful. The stomach is so weak, and we are so anxious to avoid vomiting in such cases, that the rectal method of administration is by far the best.

The insomnia caused by pain and muscular contractions, together with unwonted immobilization in the treatment of fractures, is very amenable to the good effects of trional. Here I may mention the case of a sailor admitted to the French Hospital on November 20, 1894. He had fallen astride an iron stanchion during a storm at sea. There was a fracture of the right thigh, partial rupture of the urethra, infiltration of urine, and a large hæmatoma of the right ischio-rectal region. Under anæsthesia the blood clots were turned out, the urethra catheterized, and the fracture dressed. A full dose of trional procured a good night's sleep, and the patient is now doing very well.

In cancers and bone diseases the patients frequently get into a condition of chronic insomnia, which, in my hands, has in a number of cases been greatly relieved by trional.

The pathological nervous conditions which complicate surgical disorders and are apt to cause insomnia are of frequent occurrence. Alcoholism, generally to the degree of delirium tremens, and hysteria, seen in many forms, and whose influence is so marked in so-called hysterical joints, causing marked degrees of hyperæsthesia, are both very common. Insomnia may be due to arterio-sclerosis in the class of cases in which intracranial headaches are frequent. It may also be due to insanity, to tabes and other diseases of the cord, and to the abuse of narcotics. In all such cases, when an operation is needed for some complicating condition, some hypnotic is absolutely necessary. We have the testimony of Dr. Russell Bellamy (*New York Medical Journal*, July 21, 1894) as to the good effects of trional in delirium tremens. It has not been my fortune to have recently met with any such cases, but I may be allowed to report one instance, of which I propose to publish a more detailed account, in which alcoholism was a prominent factor. Mrs. L. D., aged thirty-five years, was placed under my care through the courtesy of Dr. J. M. Ferrer, of the attending staff of the French Hospital, for trephining and removal of a large portion of the frontal bone, necessitated by a depressed fracture of the frontal of six years' standing, complicated by extensive necrosis. The patient was an opium-eater, and was also addicted to the use of alcohol in large quantities. The operation, though quite extensive and prolonged, was well borne by the patient, who, however, in a few days became nearly maniacal, insulting the attendants and nurses and being somewhat pugnacious. Morphine had to be given for a few days, but was soon replaced by trional. The operation succeeded very well in relieving an intense headache localized over the forehead. In her case the trional appears to have replaced the morphine quite satisfactorily, the opium habit seems to have disappeared, and the patient, who prior to the operation had spent her time either in a state of opium narcosis or in howling with pain and excitement, is now a very quiet and comfortable woman. Her mode of life and her inability to obtain proper treatment at home or in an institution, owing to poverty, lead me to believe that she will soon resume the morphine habit.

I may therefore briefly conclude by stating:

1. That insomnia, from whatever cause, is an important complication of surgical disorders.
2. Its relief is necessary to the comfort of the patients, improves the prognosis and materially assists recovery after operations.
3. Where pain is the chief factor, morphine is the only drug that will relieve with certainty.
4. There are many surgical disorders in which insomnia may be relieved by trional; and, finally—
5. Trional is an excellent drug for the purpose, as it acts rapidly and safely, has no inhibitory action upon the secretions, seems to possess a stimulating effect, is well borne by the stomach, is easily absorbed by the rectum, and fails to produce unpleasant after-effects.

SOME SUGGESTIONS IN BACTERIOLOGICAL TECHNIQUE.

By A. P. OHLMACHER, M. D.,
CLEVELAND, OHIO.

The following subjects are here considered:

I. A simplified method of making a bacteriological autopsy on small animals.

II. The use of methyl violet in staining the diphtheria bacillus.

III. A note on methylene blue.

I.

The object of these modifications in the technique of bacteriological autopsies on the small animals used in experimental laboratory work is to do away with certain troublesome features of the ordinary methods. As practiced by the usual methods, a properly conducted bacteriological autopsy is a tedious task, especially in those cases in which pieces of the solid organs are required as material for culture experiments. It is necessary to have at hand several sets of sterilized cutting instruments—a set for each particular organ—or the instruments of a single set must be heated to a damaging degree in the free flame before and after the removal of each piece of tissue.

The novel feature of the modified method here proposed lies in the use of ordinary commercial *benzene* as the disinfecting agent, both in solution and in ignition. The benzene is employed as a bath for the instruments used in the autopsy, and also to disinfect the surface of the animal's body before the final incision. Benzene was chosen as the agent for these purposes because of its cheapness, its active disinfecting power, and its property of burning off of the surface of metallic or other substances without creating a great amount of heat. The details of an autopsy performed with the aid of benzene are as follows:

Two small artery catch forceps (Péan's forceps), a medium-sized dissecting forceps, and a pair of medium straight dissecting scissors are placed in a suitable beaker glass two thirds full of benzene. An extra dish of benzene and a medicine-dropper are also provided.

The animal (mouse, rat, guinea-pig, rabbit, etc.) is secured on its back to the dissecting board by tacks driven through the extended fore and hind legs. The skin of the ventral surface is incised in the median line from the symphysis pubis well on to the neck; lateral cuts are made on both right and left sides at the cephalic and caudal extremities of the median incision. The flaps of skin are carefully dissected from the underlying tissue throughout the entire length of the primary incision so as to thoroughly expose the subcutaneous tissues of the thorax and abdomen; then the flaps are secured with tacks so as to be well stretched out on each side of the body. This primary dissection is done with a coarse dissecting forceps and a pair of straight scissors, no particular efforts being made to avoid contamination of the exposed surfaces. Care must be taken, however, in this dissection that only the skin is removed, and that the abdominal and thoracic walls are not penetrated. With the medicine-dropper benzene is now applied to the exposed ventral wall of the body. The benzene is then ignited and allowed to burn until the flames spontaneously subside. Should any particular area not appear properly singed, the benzene may be again applied to this spot and set afire. Some care must be taken to keep the benzene from running over the flaps and into the hair of the animal, for here the fire does not subside so harmlessly as on the exposed moist surfaces. The dissecting scissors and forceps are now removed from the dish of benzene, and the benzene clinging to them is ignited and allowed to burn off. A fold of the abdominal wall in the median line is raised with the forceps and cut through with the scissors so as to avoid the underlying organs. As soon as a moderate cut has been made the edges of the incision are grasped with the artery forceps which have been flamed on their removal from the benzene; then the incision is continued down to the pubes and up through the thoracic cavity in the middle line, while the abdominal walls are held well up with the artery forceps. The artery forceps are now changed so as to grasp the edges of the deep cut at the diaphragmatic border, while the diaphragm is cut on each side so as to allow the incised ventral walls to be held well apart, exposing freely the thoracic and abdominal contents. If an assistant is available, the artery forceps can be intrusted to him; but in the absence of an assistant the operator can secure a comfortable exposure of the abdominal and thoracic organs by making lateral incisions at the ends of the deep incision, when the weight of the artery forceps will usually be sufficient to hold the walls well apart. The scissors and forceps are now wiped free of blood and tissue, replaced in the benzene, then removed and the adhering benzene ignited, and the removal of pieces of the organs desired for bacteriological study is begun. Of course, it will be necessary to sterilize the forceps and scissors as each particular organ is dealt with, so as not to carry infectious material from one organ to another. All that is necessary for sterilization is to wipe the instruments, plunge them a moment in benzene, and burn off the benzene. It will also be necessary, especially in early autopsies, to avoid contamination of the remaining organs from the blood which flows from those already cut. This can be avoided by following a proper order in attacking the various organs, depending, of course, on the object of the examination.

From a considerable practical experience with this method, the author is ready to conclude that it is simpler, more cleanly, more expeditious, and more saving of instruments than the usual methods of bacteriological autopsy. The proportion of accidental contaminations after this method is certainly smaller than I have ever obtained with any other procedure, and this occasional contamination is doubtless due to air infection and not to imperfect sterilization of instruments and body surfaces. Control experiments with culture media, made after benzene sterilization of scissors and forceps, show the method to be a safe one. Perhaps this contains a suggestion for surgeons, especially in emergencies when ordinary sterilizing appliances are not on hand.

II.

A very powerful and brilliant stain for the diphtheria bacillus, and one which strikingly shows the irregularities of the "typical" form, may be obtained by the use of methyl violet. The aniline which I have employed was obtained from Grübler, and is specified by him as *methyl violet, 5 B.* It is important to obtain this particular brand.

To make the staining solution a saturated alcoholic solution of the dye is added to water in the proportions of about one to ten. The exact proportion is not a matter of great moment, and a little experimenting will settle this question, and enable any one to make the staining solution at a moment's notice. This mixture keeps remarkably well.

The technique of staining with this solution differs in no essential feature from the common method practiced by bacteriologists. A fixed cover-glass preparation from the diphtheria culture is stained, with heat, for half a minute, then washed with water, dried, and mounted. Or the stain may be employed without heating by allowing it to remain in contact with the film of the cover-glass preparation for one minute, though the results are not quite so good as in the heated specimens. In any case the resulting preparations are stained with a brilliancy and beauty that quite surpass the more commonly employed stains, like Loeffler's methylene blue.

III.

For some time I have had considerable trouble in making a methylene-blue solution which would stain bacteria in a satisfactory manner. The stain was always too faint and imperfect to be satisfactory. This was true of the aqueous solution, Loeffler's alkaline solution, Gabbet's decolorizing solution, and carbolic-acid solution, of methylene blue. Finally, settling upon the aniline as the source of the trouble, I tried other brands, and discovered that an aniline which is recommended for another purpose was remarkably well suited to bacteria staining, while the dye recommended for bacteriological use was unsatisfactory. In these experiments I have confined myself to the use of Grübler's anilines. The unsatisfactory methylene blue is the brand which he recommends for bacteria staining (*Methylen-Blau für Bacillenfärbung*, Koch), while the blue which gave positive results is the one proposed by Ehrlich for blood work, especially for staining *intra vitam* (*Methylen-Blau nach Ehrlich*). The Ehrlich blue is considerably more expensive than the blue after Koch, but its solutions are much more powerful as staining agents, so that in the end it is an economy to use this brand when methylene blue is called for. As the same trouble has occurred in three different lots of aniline obtained from Grübler in original packages, I am sure the failure is not accidental.

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CONGENITAL SPOTS ON ANNAMITES.

A MEANS OF RACIAL IDENTIFICATION; AND REMARKS ON LINGUISTICS IN CONNECTION WITH MIGRATION OF PEOPLES.*

By FRANKLIN B. STEPHENSON, M. D., A. A. S.,
SURGEON, U. S. NAVY; MEMBER OF THE ASIATIC SOCIETY OF JAPAN.

During a cruise on the Asiatic station, 1891–'94, as surgeon of the United States ship Marion, it was the writer's fortune to visit Saïgon, the French capital of Cochin China (or Indo-China). Near this city is the native town called Cholon, in which resides the Annamite savant Petrus Truong Vinhky. He was educated in Paris, under the direction of the Jesuits, which accounts for the Latin word prefixed to his proper racial name. His house is a veritable museum of art and of letters, containing books and manuscripts in every language whose literature affords material for linguistic investigation. In addition to the classic philological studies of western thought—so-called Aryan—with which he is familiar, he has given special attention to the tongues and dialects of eastern Asia, from Sanskrit to Kanaka. Chief among these is Chinese, whose influence is felt by neighboring peoples in every direction. This influence he has been able to appreciate because of the similarity and analogy between modes of thought and language-forms existing in the Annamese and in the speech of the great nation of Confucius and Mencius.

At the time of this visit Mr. Vinhky gave the writer some of his works on the language and literature of his native land. These books, written in French, have been presented in his name to the Boston Public Library. The great desire of this scholar is to publish a comparative treatise on language, such as has not yet been given to the world, and for which he has accumulated much material.

Moreover, Mr. Vinhky is interested in other forms of science, as what follows may show. It appears that some travelers have reported the existence of a peculiar spot on newborn children among the Annamese. Previous to the cruise referred to, E. H. Bradford, M. D., of Boston, asked the writer to make inquiries on this subject. The short time of our sojourn at Saïgon prevented such investigation; and, in reply to a written request, the following letter has been received from this Annamite gentleman:

> "Yours of August 28, 1894, to hand, and the questions put to me I shall answer in few words. Your desire is, I understand, to know the nature of this spot or mark; whether it ex-

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* Read before the American Academy of Arts and Sciences, Boston, January 9, 1895.

ists on newly born children, and if so, is it frequent? Well, I have sought out the necessary information and have confèrmed [proved] that the fact exists. The spot appears more or less on the hollow of the back, just above the hip, but not invariably, as it is occasionally on the side, and in rare cases on the arms and face. The color is black, and occasionally blue; while the size is often as large as a man's hand. This occurs to about one in every five or ten children, and in some cases is permanent; while in others it disappears as the child grows up. The name given is *xấ'uháy* = evil grace; and the belief is that it brings good fortune to the child, so that he is likely to become strong and robust. Again, this superstition is upheld by another. They say that the spot is a defect on Nature, and in consequence of which [the] evil spirit which takes away pretty children [is warded off], so that he will not come near or cause death during infancy."

After reading Mr. Vinhky's letter, E. H. Bradford, M. D., wrote as follows:

"BOSTON, *December 7, 1894.*

"MY DEAR DOCTOR: Thank you for your note, which interested me extremely. I am glad to find the fact established that this 'spot' exists. Dr. Baelz, of Tokio, told me that in Japan it existed in every case of infants; that he had made sections of the skin, and found that it consisted of a deposit of pigment. In his opinion it was not a birthmark in that it usually faded in a short time; sometimes, however, it continued until adult life. I see that Nansen describes the same thing in eastern Greenland. Now, if we could get at observations in regard to this fact, it might enable us to determine the course of wandering of the different stocks. In China possibly some of the Tartar races may have this peculiarity, while some of the others not. It will be difficult to get at accurate information, and of course young children are not usually seen by strangers. I am extremely obliged for the note, and return the letter of your Annamite friend, which I read with much interest."

Whether or not this "spot" be a birthmark may, perhaps, remain undecided. However, in *Foster's Encyclopædic Medical Dictionary* we find under the heading *Nævus* this definition: "Mother's mark, birthmark, fancy mark, a congenital mark or growth in the skin due to an excessive circumscribed development, either of pigment, hair, or fibrous tissue, or of blood-vessels, the latter forming a vascular tumor composed of a collection of capillaries freely intercommunicating. . . . There is a great variety of *nævi*. . . . Some continue to grow after birth." As is well known, their color may be reddish or bluish, according as arterial or venous blood is more abundant.

The rest of Mr. Vinhky's letter, referring to his linguistic labors, is both instructive and suggestive. He says:

"Let me add that I am still continuing my publications, but with difficulty, owing to my small resources. My *Cours de langue annamite* is now being published; and after, the other languages peculiar to Indo-China. *L'administration* is undertaking the expense of my French-Annamite Dictionary, owing to my penury circumstances. Now, in order to finish my still numerous publications I would be glad if your country could give me a *scientific donation*, for which I would give the dedication of my works; and would also, in the measure of my resources, reply to the generosity of my donor or giver. I learn that in your country there are fortunes colossal, and the little unneeded excess which many possess, would render me a great service on the aim which I seek to accomplish; and further, their name would live lastingly with my writings and my posterity. You might forgive my digression in opportune, but which is to me of good occasion; therefore I profit by it. However, trusting you will excuse me, and accept the warmest expression of my most sincere sentiment. P. TRUONG VINHKY."

The linguistic problems with which Mr. Vinhky is engaged are also significant of the course taken by various peoples in their world-wanderings. By such means are traced the origins of the Hawaiian and Fijian natives, thus related to former inhabitants of Farther India and the regions to the westward. Investigations of both corporeal and of psychical manifestations tend to the answering of the query suggested by Dr. Bradford.

AN ILLUSTRATION OF THE PREDOMINANCE OF MIND OVER MATTER.

By M. E. HUGHES, M. D.,
BROOKLYN.

IN calling the attention of the members of the medical profession to the following case, I do not do so with the intention of submitting for their criticisms a "new treatment for the morphine habit," and recommending the same for their consideration and adoption. This is not my intention. I merely desire to present for their perusal a series of facts illustrative of the supremacy of the mind in many important and very trying crises; which facts will, I think, prove both interesting and instructive to all medical men.

Early in December, 1894, I was summoned by telegram to the bedside of a young friend practicing medicine in a small town in western New York.

On my arrival, December 10th, I found him looking pale and wan, drenched with perspiration, and apparently suffering greatly from some cause.

He was extremely weak, and not inclined to talk; but, from his infrequent utterances, I gathered the fact that for four days he had battled with an attack of fifth-nerve neuralgia; and, though he had used in succession all the remedies he had ever heard suggested in the treatment of the same, he experienced no relief whatever.

A few hours later he confessed that he had contracted the morphine habit. Beginning in the latter part of September, 1894, with the injection of a fourth of a grain every morning, the dose had been rapidly increased in quantity and in the frequency of its administration, so that during the last month he had taken from three to four grains *per diem.*

For a few weeks a small dose had stimulated and brightened to a remarkable degree a temperament subject to frequent and often lengthy periods of profound melancholy; but soon a second dose was taken to overcome the depressing reaction which in a few weeks inevitably followed each injection, and in a short time he found himself indulging in large doses three times a day.

When the neuralgic attack began he had found that the combined effects of the usual remedies and the morphine had given him but little relief; in fact, he doubled the dose of morphine, but without the desired result.

The knowledge that such tremendous doses produced such trivial effects worried him greatly, and, however inopportune the moment, he now determined to discontinue the use of morphine with as little delay as possible.

Realizing that he would probably need some assistance, and knowing that I had enjoyed exceptional (for one young in the practice of medicine) advantages in the study of such cases, and, above all, remembering the staunch friendship existing between us, he asked me to remain with him for a few days, or until the result of his experiment should become obvious; stipulating, however, that I should allow him to adopt that course in regard to treatment which he chose, unless his condition should become such as to render this course unwise. To this I could not but consent.

Needless to say, I watched the progress of the case with great interest, and, as I desired to know exactly what medicines he would take, and in what doses, he readily turned over to me his syringes and all the drugs in his possession.

I had another bed placed in his room, became in fact his nurse, so that my information might be exact in every respect.

December 10th.—During the day he had taken only two quarter-grain doses of morphine, so that on my arrival at 6 P. M. he must have been, and stated that he was, suffering terribly because of these greatly diminished doses, having taken five grains on December 9th.

About 10 P. M. he took another quarter-grain dose. During the night he slept an hour, but rolled and tossed about in a profuse perspiration, and in all human probability was suffering the tortures of the damned.

11th.—Took three quarter-grain doses of morphine, three doses of a combination of strychnine sulphate and atropine sulphate, and four small doses of glonoin.

All three were taken by hypodermic injection, as his stomach was exceedingly intolerant of medicine; and also, he stated, the preparation of the drug and the prick of the needle fooled his nervous system, as it were, leading it to believe that it was about to receive the aid of another dose of morphine in the performance of its functions, and thus gave him a little relief temporarily. Then, too, the glonoin stimulated him to some extent.

He slept but two hours during the night, his condition being about the same as on the previous night, and his suffering equally acute.

12th.—Treatment same as on the preceding day, except that the midday dose of morphine was reduced to an eighth of a grain.

During the day his neuralgic pains lessened considerably in severity, and the following day ceased to annoy him.

Slept very little at night, was very restless, and, as usual, drenched with perspiration.

13th.—Treatment as usual. Morning dose of morphine also reduced to an eighth of a grain. Vomited twice during the day.

At 10 P. M. took a quarter of a grain of morphine and stated that it acted as is usual on a person not accustomed to it—*i. e.*, delightful, soothing, and stimulating. For two hours he was apparently in excellent spirits, in marked contrast to his usual condition since my arrival, which was one of extreme irritability and quite evident suffering. He had no inclination for exercise, and remained in bed, with no desire to speak or to be spoken to. During the night he slept about five hours. Still perspired very freely.

14th.—Dropped the midday dose of morphine. Other treatment the same. He stated that each dose now acted as it normally should, and the quarter-grain dose at 10 P. M. was again followed by about five hours' sleep—*i. e.*, he went to sleep about two hours after its administration and slept for five hours.

15th.—Treatment same as on previous day. Slept fairly well at night. Dropped the midday dose.

16th.—Dropped the morning dose of morphine. Continued to sleep from five to six hours every night.

17th.—Reclined on a couch the greater part of the day. He suffered much less than on the previous day; but his extreme irritability, so foreign to his temperament in health, was proof positive to me that he had not yet won the battle by any means.

At 10 P. M. reduced his dose to an eighth of a grain, and he slept quite well. He still continued to inject atropine, glonoin, and strychnine; and it was not until ten days later that he discontinued the use of the two former, though he gradually diminished the frequency of their administration. The injections of strychnine were kept up for four weeks.

18th.—Took a twelfth of a grain of morphine at 10 P. M. From this date he was out of bed during the entire day. His appetite improved, and he stated that the "morphine pains" were far more easily borne, though he was greatly annoyed by profuse "sweats" recurring at frequent periods.

He is, I believe, occasionally troubled with these sweats up to the present time.

Throughout the entire period drenching sweats proved to be the most important objective symptom, notwithstanding the use of atropine three times a day.

19th.—Took a sixteenth of a grain of morphine at 10 P. M., and this he determined should be the last dose.

20th.—Took twenty grains of trional at 8 P. M., and continued its use, with good results, for seven days. His general condition was now much improved; and though by no means rid of a great "hankering" for an occasional dose of morphine, he never after resorted to its use.

In a few days he was in apparently perfect health, and able to combat any morbid desires by saddling his horse and enjoying a brisk gallop over the country roads, the weather remaining remarkably fine until Christmas.

24th.—I left him, after congratulating him on the successful termination of his experiment.

He expressed himself as quite confident of his ability to resist future temptation, and I had no doubt of it whatever. Certainly any future desire can not be compared in intensity to those which he had already so successfully combated.

I never before met a person habituated to the use of from three to four grains of morphine *per diem* who could rid himself of the habit in the short space of ten days under self treatment, or, in fact, any other kind of treatment.

I look upon his success as being due almost entirely to his strength of will, aided perhaps by an almost Cromwellian faith in the Almighty; and therefore believe that he would have succeeded under any treatment, provided that it were of a rational character.

Therefore, ending as I began, I regard it as an excellent illustration of the predominance of mind over matter.

RATIONAL THERAPEUTICS OF CHOLERA INFANTUM.

By GUSTAVUS BLECH, M. D.,
ST. LOUIS.

No strict rules can be given for the treatment of disease. It is for this reason that so many physicians say we do not treat a disease, but we treat an individual. True enough, we treat the individual, but what we have most of all to consider is the disease. The individual will dictate us alterations and modifications in our treatment.

A general plan of treatment may be outlined, however, and I will try to do so in regard to one of the most fatal diseases of babyhood—cholera infantum.

There is a certain philosophy in therapeutics which I would frame in the three following rules: First, remove if possible the disturbing causes; second, treat symptoms which *per se* are liable to endanger the life of the patient; and third, sustain vitality.

As said before, the therapeutics which is based upon the ætiology and pathology of a given case is the only one to be employed.

Now, the ætiology of cholera infantum is not so obscure as asserted by a good many authors. Whether or not of microbic origin, one thing is sure—it is due to a chemical decomposition of food, causing an inflammatory condition of the digestive and alimentary canal.

Clinical experience, furthermore, shows that this disease is of a grave character, producing death in a large proportion. Heat *per se* is not the immediate cause of this disease, but it influences its course considerably. Therefore, gastric or intestinal disturbances in summer demand a closer attention than those which occur during the colder season. Cholera infantum is a disease met even in the palaces of the rich, although not so often as in the tenement houses of the poor, which fact proves again that bad air, filth, and lack of ventilation are also of a predisposing influence, as well as an obstacle to a quick cure. The mortality in the tenement houses is larger than that of the richer parts.

If we consider the aforesaid, we shall first of all, as regards the treatment of this disease, have to restrict diet.

As soon as called to a case of cholera infantum, prohibit for the first day any food whatever. Mothers have no right to nurse the little patient either. Strict instructions must be given in that direction, because the timid mothers are often inclined to quiet the crying babies by putting them to the breast.

Remedies are of very little value. Beginning with calomel, salol, and all the newer antiseptics, finishing with subnitrate of bismuth—they have all proved a failure, for none of them work quickly enough.

The treatment as outlined by Dr. Elmer Lee, of Chicago, in his cases of typhoid fever, proved a success in my hands during last summer, and under this treatment I have lost only one patient out of twenty-three, while the monuments of my skill exercised during the year 1893 are decorating the cemeteries of the State of Connecticut.

So far as I knew, the best antiseptic (which has also a strong tendency to reduce local inflammation) was peroxide of hydrogen (medicinal) until hydrozone was used by me. Hydrozone being twice as strong as Marchand's peroxide of hydrogen (for economical reasons), the latter drug is preferred by me. This remedy can be administered internally as well as externally.

I add a tablespoonful of hydrozone to a pint of water for washing out the stomach. The vomiting ceases after the first washing as a rule. If necessary, this procedure can be repeated. If the vital power of the little patient is not too low it can produce no harm. But in every case, no matter how far advanced, I do not omit an irrigation of the bowels, for which purpose I use a soft rubber catheter attached to a common bulb syringe. The catheter is introduced as high in the colon as possible. It is unnecessary to say that the water must first be sterilized. I do not agree with Dr. Lee in using hot soap water. On the contrary, I use cold water, and add to each quart about two ounces of hydrozone. The improvement after the first or second irrigation is marked. If necessary, these irrigations can be repeated every two hours.

Among other remedies there are only two to be employed, morphine and strychnine. Both ought to be administered hypodermically. Their indication is too well known and they are about all we need. No antipyretics should be given. If the fever is very high and if the irrigation of the bowels does not reduce it, the whole body should be washed with alcohol.

The diet for the next twenty-four hours should be very light indeed. Sweet, strong Russian tea is all I allow.

Each individual case will teach us when food can be allowed again.

Since the adoption of this mode of treatment I have met with the most remarkable success, and no honest practitioner should refuse it a trial.

11 N. BROADWAY.

A UNIQUE METHOD OF MASTURBATION,

AND AN ACCIDENT THEREFROM.

By A. KIDDER PAGE, M. D.,

BOSTON.

J. O'B., nineteen years of age, single, came to my office at 12.30 A. M., January 4, 1895, and gave the following history—*i. e.*, while practicing masturbation two hours before he had met with a very peculiar accident.

As had been his custom for some years, he had used a bottle to assist him in the "act," but had never met with any difficulty until the present time, when his penis had got stuck in the bottle. Upon examination I found the penis tightly incased within the "neck" of the bottle, the glans and prepuce protruding through the "neck." The prepuce was very œdematous; the glans was cut for about an inch in circumference from coming in contact with the sharp edges of the glass (he having broken the "body" of the bottle before coming to my office). The bottle was that of a quart size, with a neck three inches and a half long and seven eighths of an inch in diameter at the top.

It was impossible to move the "neck" in any direction, so tightly was the penis incased. I first packed the parts in ice, thinking I might be able to reduce the venous engorgement, but after fifteen minutes' trial with this method my results were unsuccessful. I did not attempt to break the "neck" with a hammer for fear of injury to the organ. I finally packed the pubic end of the penis in ice, and then, after three or four minutes, I was able to insert the point of my bone-forceps blade between the penis and "neck," and to cut it away piece by piece. I kept the parts covered with towels to prevent the glass from flying about.

Small particles of glass were profusely distributed upon the penis and under the prepuce; these I finally removed with the aid of a fountain syringe.

MASSACHUSETTS AND WESTLAND AVENUES.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by
D. Appleton & Co.
Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, MARCH 2, 1895.

RIGA'S DISEASE.

In the *Presse médicale* for January 26th M. F. Brun reports a case of the affection known as Riga's disease, the first, he thinks, thus far published in France, where it is known only by an analysis of a former work by Fede, which appeared in the November, 1893, number of the *Revue des maladies de l'enfance;* by a new and important communication made by Fede at the International Medical Congress in 1894, which was published in the *Mercredi médical* for June 20th; and by an abstract of this communication published in the *Médecine infantile* for August 15th.

What at first seems to lend a peculiar character to this affection, says the author, is the fact that, on the one hand, it has been observed almost exclusively in the southern provinces of Italy, where it seems to be endemic, occasionally attacking all the children in a family, so that it has been considered by some to be an hereditary and congenital affection. On the other hand, it is observed when the first teeth make their appearance, apart from whooping-cough, sometimes in children whose general health shows nothing wrong, sometimes in cachectic children who are exhausted by ordinary attacks of gastro-intestinal catarrh. With regard to any point that the serious and the benign cases may have in common, which may be considered as the proper character of the disease, it is the production, at the level of the frenum of the tongue, of a prominent fungous excrescence covered with a whitish exudation diphtheritic in appearance. The author recently had occasion to observe a case which seemed to him to correspond exactly with the descriptions given by the Italian physicians. The patient was a child, fourteen months old. It had never shown any symptoms of disease; it had never vomited or had diarrhœa, and it had not had whooping-cough or any convulsive attacks of coughing. The first teeth had made their appearance when the child was ten months old, and shortly after the eruption of the two lower central incisors the mother had noticed a small tumor under the child's tongue, which had steadily increased in size, but without having had any unfavorable effect on nutrition. The child's condition appeared to be excellent; there was no trace of rhachitis, and this sublingual lesion, which seemed to be the only indication of disease, showed the following characteristics: Situated on the lower surface of the tongue, it was not visible unless the tongue was raised: it had the appearance of a tumor and was from four to five millimetres in height. It lay exactly in the median line, on the frenum, the anterior part of which it occupied, reaching as far as its lingual insertion, on each side of which could be clearly distinguished—and altogether independent—the openings of Wharton's ducts.

The tumor was firm and parchmentlike, and the hardness extended to the right and to the left somewhat beyond the protruding mass. With regard to the color, it varied in the center and at the periphery, where it was of the color of the lingual mucous membrane, while the central part assumed a whitish aspect owing to the presence of an exudation which became detached when it was rubbed gently with a tampon of cotton. When this was removed there was seen to be an ulcerated surface, villous and bloody, which, twenty-four hours afterward, was again covered with a false membrane. There were no other lesions of the buccal mucous membrane and no submaxillary or supra-hyoid ganglia. For several days applications of tincture of iodine were made to the surface of the tumor, but not obtaining any results from this, the author resorted to excision. A broad denuded surface was left after the excision, which he cauterized. On the following day the child's condition was normal, and cicatrization followed without any particular incident.

After the excision pieces of the tumor were sent to M. Letulle, who made an examination of them. The results of this investigation are given in detail in the following account which he sent to M. Brun: "The sections, which were made perpendicularly to the surface of the piece removed, showed the successive layers of the buccal mucous membrane that had undergone various alterations: 1. The conjunctivo-vascular tissue of the mucous membrane was gorged with blood-vessels, mostly capillaries, very much dilated and lined with normal endothelia, several of which showed evidence of caryocinesis. The connective-tissue spaces, distended by a lymph that was somewhat rich in white cells, did not contain any kind of microbe. 2. The epithelial layers of the mucous membrane rested on a series of long conjunctival papillæ amply provided with capillary vessels, which were larger than usual. The proof that the dermal papillæ which corresponded to the tumefied mass were hypertrophied, was the condition of the derma on the borders of the specimen; there the papillary protuberances were not half so numerous as in the center of the hypertrophied mass. It was the same with the epithelial layers, so that from this point of view the edges of the tumor and its center were different in the same specimen. On the edges the pavement epithelia were accumulated in thick bands, terminated by a collection of nucleated epithelial cells, flattened, and much denser than at the surface of the normal buccal mucous membrane. Between the hypertrophied papillæ the epithelial elements, which were very broad, were deeply buried, without however, having passed at any point the normal limit separating them from the dermal tissue. There was not, then, in these hyperplastic zones, which were like the border of the tumor removed, any trace of a neoplastic epitheliomatous production. There were not, either, any sufficient characteristics to warrant the application of the term papilloma to this dermo-epithelial overgrowth; it was, at the most, an hypertrophy of the mucous membrane in all its parts, and the causes of this hypertrotrophy were shown by a study of the center of the mass, where the condition of the parts was different; there the derma was ulcerated, at least denuded, at a great many points. The papillæ were abraded, some also had disappeared, and all the epithelial layers had been shed and been replaced by a very characteristic fibrino-leucocytic exudation. The false membrane which thus became attached to the derma of the mucous membrane extended here and there on the epithelial layers of the periphery, showing a very characteristic aspect, the diphtheritic false membrane covering nearly the entire tumor. The layers of fibrin were formed at the expense of the epithelia and of the leucocytes which were exuded; the microscopical examinations of the sections showed this very plainly. They were thick and dense, and their surface was covered with leucocytes, mucus, and microbes. The sections, treated by Weigert's method, showed two very distinct kinds of micro-organisms: 1. Long bacilli, rather slender, susceptible to Gram's solution, and situated only on the surface of the false membrane, into which it scarcely penetrated. 2. There were micrococci, round, slender, often in diplococci and in round masses, sometimes also in chains. These microbes were sunk in the surface in the deepest layers of the false membrane, without, however, ever going so far as the layers of fibrinous exudation; the points where they disappeared were always nearer the surface than the derma, to which the streptococci were not confined at any point. To sum it all up, the mass was not a tumor. It consisted of a chronic hypertrophy of the buccal mucous membrane, and was purely inflammatory. The center of its surface was ulcerated and covered with fibrinous false membranes which were infiltrated with microbes, but the microbes did not seem to have played any part in giving rise to the exudates."

It is not on one fact alone, says M. Brun, that we can rely in order to determine exactly the nature and the pathology of Riga's disease. The foregoing observation, however, presents certain features which are, he adds, not without importance. Without doubt, he says, he has seen the affection which has been described in Italy under the following names: Necrosis by compression (Ridola); small, pearly, fibrinous neoplasm (Pandolfi); pearl-colored neomembrane due to internal infection (Riga); sublingual production or Riga's disease (Fede). The descriptions given by these different authors and that cited above are altogether identical, says the author, and M. Letulle's histological examination is itself an exact reproduction of Fede's descriptions; there are the same lesions which were observed by Boccardi in two children who had a grave form of the disease, which terminated fatally.

In the author's case the sublingual lesion had no subsequent effects on the general health, although it had been growing for four months before he saw it. He thinks it is rational to admit, judging from the results of the histological examination, that it was a question of a local lesion, a sort of traumatic ulceration directly connected with the rubbing of the inferior surface of the tongue on the sharp edges of the two lower incisors, the repeated friction being considered as the probable cause of the papillary appearance of the ulceration. Must we look, asks M. Brun, for different interpretations in cases where the buccal lesion is observed in cachectic children, who have gastro-intestinal troubles which often end in death, and see in this, as Pianese did, a true infectious disease characterized on the one hand by general symptoms and on the other hand by a local lesion, the sublingual production, which would seem to be the means of entrance for infection or its particular localization? The undeniable fact that the tumor of the frenum presents clinically and histologically the same characteristics in healthy children and in cachectic children hardly favors this hypothesis, and until there is more conclusive information M. Brun thinks, with Fede, that it is natural to suppose that Riga's disease is more frequent in cachectics because their tissues are less resistant to the irritating causes, and because this disease only borrows an apparent gravity from the conditions under which it is sometimes produced.

THE PROPOSED HOSPITAL FOR PAY-PATIENTS WITH SCARLET FEVER OR DIPHTHERIA.

The project of establishing pay-hospitals in New York for the benefit of persons attacked with acute infectious disease under circumstances that are incompatible with their remaining in hired rooms has often been discussed, and we have advocated it strenuously. The difficulty of obtaining suitably situated property to be devoted to such a purpose has heretofore stood in the way of its execution, for whenever a site has been seriously considered the plan has encountered vigorous opposition on the part of the owners and occupants of neighboring property. Of course, there is no reasonable ground for such opposition, but so long as prejudice and narrow-mindedness and selfishness are as prevalent as they are now and always have been it will defeat many a noble plan and humane purpose. Quite recently, however, we are glad to be able to say, a piece of land has been spoken of that seems not to be in any way subject to the control, direct or indirect, of persons hostile to the proposed undertaking. It is situated in East Sixteenth Street, near the East River, and it is under the control of the Health Department of the city. It is in the immediate neighborhood of the Willard Parker Hospital, in which sick persons of the sort in question are cared for now. The Willard Parker Hospital is well conducted—indeed it is a credit to the city—but necessarily it does not afford the luxuries that well-to-do persons feel themselves entitled to enjoy so long as they are able and willing to pay for them.

To start the enterprise, a generous lady, Mrs. John W. Minturn, has offered the sum of $25,000, which she has at her disposal, to be applied to the building of the proposed hospital, provided the board of health will give the land for it to stand on and will co-operate with a board of trustees representing the subscribers to the endowment—for further substantial contributions are confidently expected—in managing the hospital. Mrs. Minturn's humane proposition has been laid before President Wilson, of the board of health, in a letter written by Dr. John W. Brannan, to whose encouragement and tact, if we mistake not, the public will be largely indebted for the benefits of the hospital. And Mr. Wilson, for his part, has assured Dr. Brannan of his approval of the plan and of his opinion that it is feasible; moreover, weighty assurances have been given that enough additional money will be subscribed to guarantee, to use Mr. Wilson's words, "that the hospital may from the outset be in so independent a position financially that it can not fail to accomplish all that is intended."

The ideal plan, of course, would be to have such a special hospital, or at least a special pavilion, devoted to each of the acute infectious diseases, so as to allay the timidity of some of the sick and their friends as to the danger of their being unnecessarily exposed to some other infection; but let us be thankful for this good beginning—when the comfortable isolation of persons suffering with scarlet fever or diphtheria has become an established custom the community will, we feel sure, soon call for like provision for those who are taken sick with the other infectious fevers.

MINOR PARAGRAPHS.

THE PHYSICIANS' MUTUAL AID ASSOCIATION.

The New York Physicians' Mutual Aid Association, of the various steps of whose good work it has frequently been our pleasant duty to make mention, has lately given a token of its prosperity of a kind that we do not remember to have observed before. It has paid an assessment out of the surplus funds, and thus avoided calling on its members.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending February 26, 1895:

DISEASES.	Week ending Feb. 19.		Week ending Feb. 26.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	5	6	9	5
Scarlet fever	95	17	108	15
Cerebro-spinal meningitis	0	0	3	2
Measles	96	5	84	12
Diphtheria	185	38	218	37
Small-pox	0	0	1	0
Tuberculosis	78	126	98	75

The American Medical Association.—The secretary of the Section in Neurology and Medical Jurisprudence, Dr. T. D. Crothers, of Hartford, Conn., has issued a circular calling for short papers on Epilepsy, Medically, Surgically, and Therapeutically; Hypnotism and Mental Therapeutics and their Medico-legal Relations; and Electricity—some New Therapeutical Relations and Questions of Treatment.

The Death of M. Alphonse Guerin, of Paris, is announced as having taken place on Thursday, February 21st. He was seventy-eight years old.

The Cleveland Medical Society.—The meeting of February 22d was devoted to the antitoxine treatment of diphtheria. The proceedings included papers by Dr. A. P. Ohlmacher, Dr. William T. Howard, Jr., and Dr. A. W. Hopkins, of Ashtabula.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 10 to February 23, 1895:*

Tilton, Henry R., Lieutenant Colonel and Deputy Surgeon General, is announced as Medical Director, Headquarters Department of Dakota.

Godfrey, Guy C. M., First Lieutenant and Assistant Surgeon, will proceed without delay from Fort D. A. Russell, Wyoming, to Fort Omaha, Nebraska, and report for temporary duty.

Byrne, Charles C., Colonel and Assistant Surgeon General, is relieved from duty as Medical Director, Headquarters Department of Dakota, and announced as Medical Director, Headquarters Department of the East.

Birmingham, Henry P., Captain and Assistant Surgeon, is relieved from duty at Fort Grant, Arizona Territory, and ordered to Fort Trumbull, Conn., for duty, relieving Walker, Freeman V., Captain and Assistant Surgeon. Captain Walker, on being thus relieved, will proceed to Fort Grant, Arizona, and report for duty at that post.

Fisher, Henry C., First Lieutenant and Assistant Surgeon. The extension of leave of absence granted is further extended one month.

Society Meetings for the Coming Week:

Monday, *March 4th:* New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society, New York (private); Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association (annual); Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

Tuesday, *March 5th:* New York Neurological Society; New York Obstetrical Society (private); Buffalo, N. Y., Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Society of the County of Herkimer (annual—Herkimer), N. Y.; Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore); Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Essex, Mass., South District Medical Society (annual—Salem).

Wednesday, *March 6th:* New York Academy of Medicine (Section in Public Health); Society of Alumni of Bellevue Hospital, New York; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

Thursday, *March 7th:* New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

Friday, *March 8th:* Yorkville Medical Association, New York (private); Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

Saturday, *March 9th:* Obstetrical Society of Boston (private).

Births, Marriages, and Deaths.

Married.

James—Jennings.—In New York, on Wednesday, February 20th, Dr. Walter B. James and Miss Helen G. Jennings.

Died.

Dubois.—In Portsmouth, N. H., on Sunday, February 24th, Medical Inspector Frank L. Dubois, of the navy, aged fifty-seven years.

Forbes.—In New York, on Wednesday, February 20th, Dr. Lucy S. Forbes, in the thirty-second year of her age.

Magee.—In New Orleans, on Wednesday, February 13th, Dr. John Milton Magee, aged seventy-four years.

Porcher.—In Pinopolis, S. C., on Thursday, February 14th, Margaret Bentley, wife of Dr. F. Peyre Porcher.

Letters to the Editor.

THE FIRST AMERICAN SYMPHYSIOTOMIES.

Brooklyn, *February 24, 1895.*

To the Editor of the New York Medical Journal:

Sir: In a recent number of the Philadelphia *Medical News* appeared an article under this title. It was published as an editorial, but was evidently inspired, if not mainly written, by the eminent statistician, Dr. Robert P. Harris. It places on record three symphysiotomies said to have been done before Pinard, of Paris, first operated.

It is stated that Dr. Joel O. Williams, now living in William Penn, Washington County, Texas, a town of twenty-nine inhabitants, did three pubic sections, one in 1880, one in 1884, and one in 1889. An humble practitioner in an obscure settlement of less than a score and a half of people professes to have been the first in all the world, outside of Italy, to follow the example of Morisani. Yet not a particle of medical evidence is adduced to support the allegations of the claimant. No other physician was present at the alleged operations, nor is the testimony of any of the doctor's colleagues invoked in proof of the truthfulness of his assertions. The acceptance of these reports is based in one case on the affidavit of the woman said to have been operated upon, and in another on that of an alleged lay witness. Coggin's claim, it will be remembered, rested on similar affidavits, a method of proof for which a physician in good repute among his fellows could have no use in substantiation of a mere scientific statement of medical facts.

Of one of his cases Dr. Williams says, "the pelvis was so contracted transversely that it was with some difficulty that two fingers could be passed," a condition in which delivery by symphysiotomy would have been clearly impossible. Yet the child, he tells us, was extracted by forceps and saved, and that, too, after the mother had been for two or three days in labor and for thirty-nine hours in convulsions. Singularly enough, no laceration, hæmorrhage, sepsis, or other operative complication appears to have occurred in any of these cases.

Brilliant as were these successes, nothing was known of them, in all these years, by the local profession. Remarkable as was the surgical genius implied in so bold a departure as symphysiotomy would at that time have been, especially in a rural district, Dr. Williams's fellow practitioners, as diligent inquiry has shown, did not till now know that he made any pretense to operative work of any kind. Reputable physicians in the two counties in which the doctor has resided, including members of the State board of medical examiners, denounce the story as preposterous. Not one can be found who believes it. More than that, recent investigation by the local profession, as I am credibly informed, has disproved it.

It is to be regretted that our distinguished American statistician should have lent his indorsement to such ill-founded claims as this and the Coggin recital. Until these reports of early American operations can be made to bear at least the semblance of truth, the credit for the general revival of symphysiotomy must be accorded to Pinard, of Paris. So far as yet appears, he performed the first modern pubic section outside of Italy.

Charles Jewett, M. D.

SEPARATION OF THE LESSER TUBEROSITY OF THE HEAD OF THE HUMERUS.

Morgantown, W. Va., *January 25, 1895.*

To the Editor of the New York Medical Journal:

Sir: I desire to report a case of separation of the lesser tuberosity of the head of the humerus. A boy, seventeen years of age, fell from the roof of a barn to an oak floor eighteen feet below, and remained unconscious until picked up some minutes after. His shoulder was enormously swollen and there was a fracture of the shaft of the humerus at about the middle. The fracture was treated with good results. Movement at the elbow was practiced every day throughout the treatment. When the dressing and shoulder cap were removed a bony prominence could be seen and felt under the skin coming part way through the substance of the deltoid over the site of the lesser tuberosity. It had united again with the head of the humerus, inasmuch as it rotated with the head. Complete loss of function of the deltoid existed at this time and is not better now, ten weeks after. There is a nail-like process of bone projecting from the site of the lesser tuberosity through the substance of the deltoid. I can only find three cases of this character recorded.

There was complete sudden jaundice of the entire cutaneous surface of the boy when he was found. This cleared up in about ten days under small doses of Epsom salts. The boy was so stupid that he complained very little of pain during manipulation of the fracture.

James W. Hartigan, M. D.

Proceedings of Societies.

THE NEW YORK NEUROLOGICAL SOCIETY.

Meeting of Tuesday, January 8, 1895.

The President, Dr. Edward D. Fisher, in the Chair.

A Case for Diagnosis.—Dr. Græme M. Hammond presented a girl, aged thirteen years, one of a pair of twins and poorly developed. There was nothing of importance in either her personal or her family history. For several years past her physician in the West, where she lived, had noticed a peculiar hardness of the muscles underneath the skin. This hardness was most pronounced in the muscles of the face and back of the neck and in those of the thorax and arms. When the muscles were relaxed and at rest the condition was not so pronounced. It did not interfere with the child's motions, as she was able to jump fences and walk and run at pleasure. There was neither atrophy nor hypertrophy of the muscles. The child was well nourished and felt perfectly healthy. There was no discoloration of the skin or any coldness of the extremities. The strength was good. The knee-jerks and electrical reactions were normal. There was no similarity between her condition and sclerodermia or Thomsen's disease.

Acute Arsenical Poisoning, with Subsequent Multiple Neuritis.—Dr. Philip Meirowitz presented the case of a young man, aged nineteen years, who had inadvertently swallowed a large dose of arsenious acid, a teaspoonful (about seventy grains by weight). Immediately perceiving his mistake, he had forced himself to vomit by thrusting his finger into the pharynx, but the vomiting had not been very copious. Three hours after the ingestion of the poison severe pains in the stomach had come on, accompanied by vomiting, and this had continued for three days at intervals of from five to ten minutes. Food could not be retained, and he had come to feel an intense thirst. A physician who had been called had prescribed iron, but this had not been retained. The pain in the stomach had lasted for six days; the pulse had grown weak, the urine had been bloody, and its passage had caused considerable pain. The bowels had remained costive for four days. On the second day after the poisoning the patient's sight had become affected. On account of the weak action of the heart attempts to sit up in bed would result in syncope. There had also been temporary deafness and tinnitus aurium, with hæmorrhage from the ears, followed by a discharge of pus. On the fourth night after the poisoning the patient had become delirious and had hallucinations of sight; this had lasted for two days. The tongue had been blistered and swollen; the lips, eyes, and face œdematous. With the exception of a few pimples on the face, there had been no skin eruption. He had had a severe, burning headache, which had been difficult to relieve. On the seventh night he had entered into a condition of collapse, but had rallied the next morning. On the ninth day the stomach had tolerated a little food, and on the eleventh day he had been able to leave his bed. He had lost about twenty pounds during his confinement. At the end of the third week severe, continuous pains had manifested themselves in the legs, and three days later in the feet, which had become swollen. He had never had any pains in the arms, but some tingling in the hands. The condition of his legs had gradually become worse, until he had been unable to walk without the aid of crutches. On October 15, 1894, when he first came under Dr. Meirowitz's observation, an examination was made with the following result: The patient's gait was that of an ataxic; the legs were lifted high, to enable the toes to clear the ground, and were brought down with a stamp. The feet drooped and were cyanosed and cold; there was marked tenderness to pressure of the feet, legs, and thighs; the muscles of the leg were atrophied; there were involuntary contractions and twitchings in the calf muscles. The foot, patella, and cremasteric reflexes were absent. Control over the contents of the bladder and bowels was normal. There was anæsthesia of the feet to the touch, extending to a point immediately above the ankle joint; two inches above this there was an area of hyperæsthesia. Both lower extremities showed pretty generally hyperæsthesia to pain. On testing with hot and cold water, the feet were found to be markedly anæsthetic, while the lower half of each leg was hyperæsthetic. There was also decided anæsthesia of the legs to both faradaism and galvanism. The electrical tests showed the reaction of degeneration for both currents. In the upper extremities the hands were mainly affected, and the movements of the fingers were greatly impaired.

Dr. C. A. Herter said he considered the case an interesting one because it was comparatively rare to see multiple neuritis produced by a single dose of arsenic; it was not so uncommon to see it produced by the injudicious use of arsenic given for medicinal purposes. The case was also interesting because it enabled us to fix accurately the time when the influence of the drug on the peripheral nervous system had been sufficiently pronounced to give rise to actual paralysis. This period, in the case narrated, had been about two months. The speaker expressed the opinion that in many instances a multiple neuritis of toxic origin did not manifest itself until some time after the ingestion of the toxic substance had ceased. In one case that he had seen, that of a woman suffering from alcoholism, a neuritis had developed six weeks after the patient had been admitted into the hospital, during which time she had practically had no alcohol given her. Another point of interest was the manner in which the cerebral symptoms were produced in cases of arsenic poisoning or lead poisoning of long standing. In a case of the latter recently observed, an encephalopathy had developed after paralysis of all four extremities. Ordinarily this condition would be attributed to the action of the lead on the brain primarily, but, as the man had a nephritis of long standing, it was difficult to say, as it was in all these cases, whether the cerebral symptoms were due to the poison directly or were of uræmic origin.

Dr. Mary Putnam Jacobi said that when we considered the enormous dose of arsenic that the boy had taken, and the comparatively small part of it that he seemed to have vomited afterward, it appeared probable that much of the poison had been stored up in the liver, and subsequently found its way into the circulation. From the history of the case, it seemed almost incredible that so large a dose had been taken, as such patients usually suffered from violent gastro-enteritis, or else there was a condition of choleriform collapse.

Dr. William M. Leszynsky, in reply to Dr. Herter, said that in his experience cases of arsenical poisoning due to the administration of the drug medicinally were not very frequent. He had seen five or six cases of multiple neuritis due to the ingestion of a single large dose of arsenic.

Dr. Cabot referred to a case reported in Boston where a child had suffered from symptoms of arsenical poisoning, and it had been found on investigation that the material of the nurse's dress contained a large amount of the drug.

The President said that in these cases of metallic poisoning it was impossible to fix any limit to the time when the signs of neuritis might come on, as the poison often remained stored up in the system indefinitely. This was shown in persons who had been exposed to lead, and who long afterward might be attacked with the symptoms of lead poisoning when potassium iodide was given to them. In one case of acute mercurial poisoning that he had seen a neuritis had developed within forty-eight hours after the ingestion of the poison.

Three Cases of Unilateral Lesion of the Spinal Cord were presented by Dr. Pearce Bailey. The first patient was a man, aged forty-seven years, a Norwegian. Soon after his arrival in this country, twelve years ago, he had been stabbed in the back of the neck, close to the skull, on the left side. He had been unconscious for three hours after the receipt of this injury and had been removed to the hospital. On regaining consciousness he had found himself hemiplegic on the left side. The fact that he was hemi-anæsthetic on the right side had not been noticed until some time later. His head had hung limp upon his right shoulder, and for five weeks he had been confined to bed with his head in supports. At the end of that time the power had begun to return to the leg and still later to the arm. Complete return of muscular strength had not occurred in either, and, though the leg was better than the arm, both were stiff. Sensation in these limbs had remained normal. On the right side tactile sensibility was but slightly affected, while sensation for pain and temperature was so much impaired that ordinary cuts, bruises, etc., caused no pain unless they were very severe; he could hold a piece of ice in his right hand indefinitely, and could not distinguish between hot and cold water. A bedsore had developed over the right buttock, and there was temporary paralysis of the bowels. He continued to improve for eight months, and since then his condition had remained unchanged. All the muscles responded readily to mild faradaic currents. The right knee-jerk was active and the left considerably exaggerated, and a clonus was easily elicited on the left side. The man's motor symptoms were identical with those that might be furnished by cerebral hemiplegia. As regarded the localization of the injury in this case, Dr. Bailey said that there was some difficulty in locating the exact segment implicated, because of the absence of recognizable injury to the anterior horn. It was probable, however, that the knife-blade had entered in the immediate region of the atlas and axis, and the area of anæsthesia indicated that the fourth cervical segment was the one injured.

The second case also was one of stab wound in the neck, on the left side, followed by paralysis of the arm and leg on the corresponding side, with loss of superficial reflexes and exaggeration of the deep reflexes. There was no loss of muscular sense on that side. There was myosis, with loss of the cilio-spinal reflex. On the right side there was analgesia, also thermo-anæsthesia, and both the deep and superficial reflexes were present. In this case the sensory loss corresponded to the area supplied by the fifth cervical segment.

In the third case presented, all the symptoms were confined to the legs and the lower part of the abdomen. On the right side there was paresis of the leg, with slight contractures; the muscular sense was unimpaired; the knee-jerk was exaggerated; the cremasteric and abdominal reflexes were present; clonus was obtainable. On the left side there was analgesia, also thermo-anæsthesia; tactile sensibility was not impaired; the cremasteric and abdominal reflexes were present; the knee-jerk was absent. The motor disturbances on the right side consisted of weakness, with some stiffness of the leg. The gait was paretic rather than spastic. There was no hypertrophy or atrophy, no fibrillary twitchings, no inco-ordination, no pain or hyperæsthesia. There was some loss of control over the bladder, with some lessening of sexual power. The bowels were regular. Dr. Bailey said this case appeared to be one of right unilateral gliosis of the lower dorsal region. In connection with his cases he exhibited a number of charts showing the location of the areas of anæsthesia.

Dr. Herter referred to a case he had seen in which the patient had received a stab wound on one side of the neck, which had given rise to motor symptoms on the corresponding side and to sensory symptoms—the exact character of which he did not recall—on the opposite side. There had also been myosis, and the cilio-spinal reflex had been lost. When the patient had first been seen the knee-jerks had been absent on both sides, although the injury had been high up in the cervical region. The loss of the knee-jerks on the side where the motor paralysis existed had been permanent, while that on the opposite side had returned after about ten days.

Tumor of the Optic Thalamus, with Autopsy.—The President reported the case of a woman, aged twenty-five years, who had always enjoyed good health. She had had two children, both healthy. Her family history was negative, with the exception that her father had died of so-called softening of the brain, and that in several members of the family there was exophthalmia, but no other symptoms of Graves's disease. During her first confinement there had been pronounced enlargement of the thyreoid gland, which however had subsided. Following her second pregnancy, the thyreoid had again enlarged, and the enlargement had proved permanent: at no ime, however, had there been any rapidity of the pulse.

The patient first complained of severe headaches in April, 1894. At that time her eyes were examined, and no changes were observed in the optic discs. The pain in the head was excessive, especially in the morning, and was located on the right side and posteriorly. She was somewhat stupid. Her speech was not affected. The pupil of the left eye was dilated, but reacted normally to light. Her vision was unimpaired. There was slight left paresis of the face; the tongue did not deviate; taste was normal. The thyreoid gland was enlarged on the right side. The left arm and hand showed decided weakness. There was pronounced ataxia. Sensation was much diminished and impaired as to touch and pain. She was unable to distinguish between heat and cold. The lower extremities were not affected. There was no vomiting, and there were no convulsions; the pulse varied from sixty-five to seventy; the temperature between 97·5° and 98·5°. Her condition continued to grow worse, and the headaches persisted.

On July 21, 1894, when Dr. Fisher first saw the patient in consultation with Dr. Julius Rosenburg, there was marked paresis of the left side, with flaccidity and diminished reflexes. The sensory condition showed generally reduced response to all tests. The mental condition was somewhat affected, the patient appearing to be hysterical; this, in conjunction with the flaccid paralysis and the complete dragging of the foot on walking, made a diagnosis of hysteria probable. The paralysis, headache, and mental stupor gradually increased and the sight began to fail. On August 31st an examination of the eyes made by Dr. Carl Koller revealed left hemianopsia and choked disc, with paralysis of the left abducens. A diagnosis was then made of tumor at the base of the brain, involving the right crus cerebri above the third nerve and compressing the right optic tract. On September 12th blindness was complete, with optic atrophy. The motor and sensory symptoms on the paralyzed side remained unchanged. The patient was subject to hallucinations of sight and hearing. A diagnosis of tumor involving the optic thalamus was now made. The patient went into a condition of coma and died on September 16th. At the autopsy a large vascular tumor, the seat of a recent hæmorrhage, was found involving the right optic thalamus and compressing the optic tract on that side by its extension downward. The growth proved to be a glioma.

Tumor of the Aqueduct of Sylvius.—Dr. Joseph Collins presented the case of a lad, eighteen years old, a plumber's assistant, who had been admitted into the Hospital for Nervous Diseases on October 6, 1894. The lad had then stated that his illness dated from a fall which he had received about six months before, but he had afterward said that he had not been well for two years, having dull, sleepy feelings which his people had attributed to laziness. He had taken no interest in his work, and it had been with difficulty that he had been able to keep his place, although he had done so until four months before coming to the hospital. During these two years he had had attacks of dizziness, some headache, and occasional weak spells, but he he had never lost consciousness. He continued to grow worse, and in July, 1894, he lost control of the bladder and became uncertain and somewhat staggering in gait.

On his admission into the hospital he was examined with the following result: He was a large, dull, overgrown-looking boy, with an expressionless face. If left undisturbed he sat in one position the greater part of the time, and showed very little interest in his surroundings. He understood perfectly everything that was said to him, and answered intelligently but slowly. His memory was fairly good. He was deficient in mental power and apprehension, and continuous mental exertion was beyond him. His gait was the characteristic inco-ordination of one very drunk. When he attempted to walk he staggered, reeled, then plunged, but saved himself before falling. The staggering was not confined to either the right or left. The patellar reflexes were normal. Sensation was unimpaired, but not very acute. Vision was good; the pupils reacted to light and accommodation. The ophthalmoscope showed choked discs, but not to a very marked degree. There was no ocular paresis or paralysis. The hearing was good. There was no defect of smell or speech. The patient's temperature was continually subnormal, and he complained that he could not get thoroughly warm. He complained of spells of severe headache. He frequently passed his urine in bed or in his clothing, but this seemed to be due not so much to paralysis of the sphincter as to a lack of interest in responding to the calls of Nature. There was no nausea or vomiting. There was no loss of flesh.

The patient's condition gradually grew worse, and on the morning of November 2d he was found dead in bed. The autopsy was made eight hours after death. The occipito-mental circumference of the head was twenty-five inches and three quarters; the occipito-frontal, twenty-five inches and an eighth. There were no evidences of meningitis. On cutting off the cerebellum, medulla, pons, and cerebral peduncles there was found a grayish, translucent mass filling the aqueduct of Sylvius and projecting backward like a tongue. Anteriorly, it reached as far as the splenium of the corpus callosum and the posterior commissure. The walls of the third ventricle were nearly destroyed, so that that and the lateral ventricle practically formed one cavity. After hardening the brain in alcohol it was seen that the tumor extended downward almost to the upper termination of the fourth ventricle. Cultures of the tumor for tubercle bacilli were made with negative results. Dr. Brooks and Dr. Schmitt, who had made the bacteriological examination, had expressed the opinion that the growth was tuberculous. In connection with his paper, Dr. Collins exhibited the specimen and a number of microscopical slides.

Dr. C. L. Dana referred to somnolence as a very important symptom in the diagnosis of tumors in the central part of the brain. In a discussion of this subject before the American Neurological Association some years ago, in connection with a case reported by Dr. Sinkler, the opinion had been quite generally expressed that in cases where the growth was located in the deeper portion of the brain, not in any particular locality, however, somnolence and hebetude were much more pronounced than in cases where the growth was situated near the surface.

In reply to a question, the President stated that the patellar reflex in his case had been lost on one side only.

Dr. Herter said he regarded this as a rather remarkable feature of the case. In cerebellar lesions it was not uncommon to find one or both of the patellar reflexes absent, but with tumors of the brain in this region it was uncommon.

Dr. Leszynsky suggested that the loss of the reflex might have been due to inhibition. In a case of traumatic meningitis of the convexity of the brain that he had recently observed in a child, eight years old, there had been complete temporary loss of reflexes on both sides. This also had occurred in a case of meningitis subsequent to pneumonia.

PHILADELPHIA ACADEMY OF SURGERY.

Meeting of December 3, 1894.

The President, Dr. William Hunt, in the Chair.

A Dumb-bell-shaped Calculus which had been Partially Encysted, Removed by Lithotomy.—Dr. H. R. Wharton exhibited this calculus, which had been removed from a child five or six years of age. He showed it, as it was of interest in connection with the choice of operation for the removal of calculi from the bladders of children. This patient had been brought to the Children's Hospital, and on examination he had found a stone in the bladder. He had hesitated some time as to what operation he should make use of. He had been inclined to do litholapaxy, but when the child was etherized he had made a rectal examination, and felt a prolongation of the bladder into the rectum containing the stone. He had decided then upon lateral lithotomy, and, after exposing the stone and attempting to grasp it, he had found that it was impossible to remove it, as the posterior portion was thoroughly surrounded by the walls of the bladder. He had dissected it out with his finger without breaking it. The patient, after the operation, had done perfectly well. He believed that in a case of this kind it would be impossible to do litholapaxy, for, while the projecting portion of stone could have been grasped and crushed, the encysted portion could not have been reached.

The speaker had had very little experience with these partially encysted stones, but in two of the cases that he had recently seen he had found that a great deal could be learned by rectal examination. In the previous case he had been able to make up his mind pretty clearly as to the shape and possible attachments of the stone. He showed the specimen mainly for the purpose of calling attention to the difficulty of crushing a stone under such circumstances. He had done litholapaxy on a child five years of age. The operation was a satisfactory one if we could crush the stone completely. In the case mentioned he had used a No. 16 lithotrite, and had had no trouble in crushing and removing the stone. On the day after the operation the urine had been clear and the temperature normal. The patient had made a satisfactory recovery. Some time ago the speaker had assisted a friend in a suprapubic lithotomy where much the same conditions had been present as in the case which he had reported, the posterior portion of the stone having been imbedded. In such a case the attempt to do litholapaxy would have resulted in an incomplete operation.

Dr. J. Ewing Mears said that Dr. Wharton had presented a very interesting question. He thought the experience of lithotomists pointed to the view that, in children and in elderly persons, the cutting was safer than the crushing operation, for the reason that in children, the urethra and bladder being small, there was some difficulty in the manipulation, and in elderly persons there was danger in many cases of disease of the bladder or kidneys.

It would be remembered, he said, that when Napoleon III had been operated on for stone by crushing and death had supervened, the question had been largely discussed, and it was thought that if lithotomy had been performed in his case the result might have been different.

Dr. Thomas S. K. Morton thought that, with regard to the question of the choice of operation, it might be of interest to recall an article which had recently appeared upon the subject of litholapaxy in children, by Surgeon-Major Keegan. Major Keegan believed that litholapaxy was the ideal operation in children where we could drill ourselves properly in the procedure, but that for those who had occasion to operate but seldom the cutting method was far safer. His statistics, running up into hundreds of cases, showed an astonishingly low mortality. Before adopting the crushing operation for children he had cut in innumerable cases. Dr. Mears thought that this was the view that should guide us in this country, where few had an opportunity for extensive experience, as the affection was in most localities quite rare. Probably the cutting operation, either the left lateral or the suprapubic, would continue to be the safest operation for all save those who saw many cases.

Two Cases of Extensive Destruction of the Integument cured by Transplanting Large Flaps.—Dr. William B. Hopkins presented the following cases: John J., aged thirty-two years, had been admitted into the Episcopal Hospital on November 9, 1888, with an extensive laceration of the elbow, involving the skin and the superficial and deep fasciæ. The injury had been caused by a centrifugal drier in a sugar refinery. A month later, December 7th, an ulcer occupying the entire circumference of the elbow, consequent upon the original loss and subsequent sloughing of integument, remained. It extended from the middle of the forearm to the middle of the arm, or about ninety-six square inches in area. The following operation had then been performed: A vertical flap five inches wide and nine inches long, consisting of skin and superficial fascia, the base of which occupied the upper left pectoral region, and the edges of which were nearly parallel, had been lifted from the chest and sutured around the elbow, the limb being retained in the Velpeau posture. Approximation of the enormous chest wound, though not complete, had been materially facilitated by the emaciation following so severe an injury, and consequent relaxation of the integument of the chest. At the end of four days the flap had been severed from its basic attachment to the chest, and the arm had been released from its constrained position. There had been epidermal sloughing of the flap, after its severance, which had caused considerable anxiety, but its deeper layers had soon been found to have formed a firm attachment. The patient had remained in the hospital two hundred and seventy-nine days. The limb would be seen to have healed perfectly, and to be amply covered with a soft, pliable integument permitting of complete flexion and extension, pronation, and supination; indeed, although it was not quite so strong as the right arm, its functions had been entirely restored.

Case II.—Anton D., thirty-three years of age, a fireman, had been brought to the Episcopal Hospital on October 25, 1892, with a railroad injury of his left foot. The extremity had been so caught beneath the wheel that it had been completely flayed, but, as none of the integument had been lost, it had been brought together by sutures. Sloughing, however, of the entire skin of the foot and ankle had occurred. On December 4th a flap two inches wide had been dissected from the sound limb, from the lower portion of the thigh to the lower third of the leg, a distance of fourteen inches, its base being left attached at the lower part. Carrying the lower portion along the outer side of the foot from before backward, the flap had been reflected upon itself around the heel, and its remaining portion carried forward on the inner side of the foot to the toes. It had been retained in this position by sutures carried deeply enough through granulation tissue to take a firm hold and through the reflected lower borders of the flap occupying the sole of the foot. With a Y-shaped splint ingeniously devised by Dr. Ferguson, which had kept the injured foot in a state of absolute fixation to the calf of the leg on the sound side, the patient, with remarkable fortitude, had kept his limbs in this constrained position for over three weeks (twenty-two days), when the base of the flap had been detached, the latter having become firmly adherent to the foot. Advantage had been taken of this opportunity to gain a little more integument by dissecting the flap farther down the leg instead of cutting it off square at the root. The patient had remained in the hospital six hundred and fifty-seven days, at the end of which period he had walked without a cane and with a foot whose function had been sufficiently restored to enable him to resume his laborious occupation of fireman on a vessel. The foot would be seen to be a very useful one, its plantar aspect being covered entirely by leg skin, as shown by the growth of hair upon it.

It would be observed in both these cases that there was a singular freedom from the constriction of a tightly drawn peripheral cicatrix, œdema, impairment of function, and other evidences of impeded return circulation. This factor alone placed this method of closing large circumferential ulcers far in advance of the method by skin-grafting. Though the method of Thiersch and others, of allowing the flaps, before severance at one or both extremities, to become granulated, would have been applicable in the first case, it was very doubtful if so long a flap as that transplanted in the other case would retain its vitality throughout its length, even if left attached at both ends.

Dr. J. Ewing Mears asked Dr. Hopkins why, in the first case, he had selected the Velpeau position rather than that at right angles. This would have given better opportunity for keeping the parts clean. An interesting point was in regard to the transplantation of large flaps to cover denuded surfaces about articulations. Both the elbow and the ankle in these cases showed perfect preservation of function.

Some years ago he had had under treatment a patient in whom a large denuded surface had occupied the surface of the abdomen. It had been the largest raw surface that he had seen up to that time. It had followed a sloughing bubo from a non-infecting sore. When he had been called to the case the ulcer reached from the crest of the ilium of one side to that of the other, and from the umbilicus to the pubes in the median line, and on the right side, where it had originated, it extended three or four inches down the anterior surface of the thigh. It had required ten months for this surface to close entirely. The ulcer had finally been covered with a cicatrix which had not been very tense. Occupying the region it did, it had not been so necessary that it should possess the properties which we had seen in the cases which Dr. Hopkins had presented, where the ulceration had occurred in connection with articulations.

Dr. Hopkins said that it had been desired to take the flap from the chest rather than from the abdomen, and in order to secure the requisite length of flap it had been necessary to bring the arm approximately into a Velpeau position.

Book Notices.

Hypnotism: How it is Done: Its Uses and Dangers. By James R. Cocke, M. D. Boston: Arena Publishing Co., 1895. Pp. 4-5 to 373.

The latest contribution to the literature of hypnotism is from the pen of Dr. Cocke, of Boston. It is a very entertaining book for the general reader, and, as it was evidently intended for popular consumption, it fulfills its mission. It embraces the whole field of the ordinary phenomena of hypnotism, and is valuable as a compendium of current opinion on the subject; and its bibliography, barring a few mistakes in names and dates, is invaluable. But for the more advanced student of the science it will in some respects be somewhat disappointing. For instance, under the subtitle, How it is Done, one expects something more than a compendium of the common methods employed by others, complete as it is in that respect. The author's brief statement that he has found "the prerequisite to hypnotism to be voluntary obedience for a few minutes" evidently conceals more than it expresses, and means much more than the mere quiet passivity which all hypnotists enjoin. There is a principle underlying that statement which, had it been clearly formulated and illustrated, would have rendered his book more valuable than it is to the professional reader.

Again, he has treated all too briefly that burning topic of the hour—hypnotism and crime. He does not believe that hypnotism can be successfully employed to induce the commission of a criminal offense; but he details two experiments only to prove his position. As these experiments constitute a new departure in this line, they deserve special consideration. It has been customary for hypnotists, when making experiments to prove that hypnotism can be employed for criminal purposes, to place a paper dagger in the hands of the subject with the suggestion that there is a person present whom it is desirable to slaughter, and the subject generally thrusts the supposititious dagger into the hypothetical man with great promptitude. The superficial observer immediately comes to the conclusion that such an experiment constitutes conclusive proof that, had the dagger been a real one, a homicide would have been the result. Dr. Cocke evidently does not regard such experiments as conclusive, and he has had the courage to substitute a real weapon for the usual pasteboard dagger, with the result that the subject could not be made to use it upon a living person.

Such an experiment, properly conducted, has evidential value, as it demonstrates the fact that the self-suggestion of a subject who is not a criminal is strong enough to resist a homicidal suggestion. In point of fact such an experiment, properly conducted, would be a crucial test, for the obvious reason that an experimental homicide committed in the laboratory is just as fatal to the victim as one committed elsewhere in obedience to a criminal suggestion. Dr. Cocke states that he has tried thirty or forty experiments of a similar character with the same result in each case. If this is true he owes it to science to detail every experiment, and to state distinctly what measures, if any, he adopted to eliminate the element of suggestion. For it is obvious that an experiment with a real dagger would possess no more evidential value than one with a paper weapon, unless it is clearly shown, not only that there was no oral counter-suggestion made, but that there was nothing in the environment to suggest to the subject that he was expected to disobey the homicidal suggestion. It is difficult to imagine how the "suggestions of the environment" could be successfully eliminated in a laboratory experiment. But if Dr. Cocke can show how to do it, his experiments would constitute demonstrative evidence that hypnotic suggestion can not be successfully employed to induce the commission of crime. Otherwise they must be classed with the regulation laboratory homicides committed with paper daggers upon unoffending broomsticks, and, like them, would possess no evidential value whatever. It is to be hoped that Dr. Cocke will treat this subject more fully in a second edition.

BOOKS, ETC., RECEIVED.

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M. D., New York City. In Twenty Volumes. Volume I. Diseases of the Uropoietic System. New York: William Wood & Co., 1895. Pp. vi–2 to 737.

A Manual of Diseases of the Ear for the Use of Students and Practitioners of Medicine. By Albert Buck, M. D., Clinical Professor of the Diseases of the Ear, College of Physicians and Surgeons, New York, etc. Second Revised Edition. New York: William Wood & Co., 1895. Pp. x–457.

The Middlesex Hospital. Reports of the Medical and Surgical Registrars and Pathologist for the Year 1893.

Return to an Order of the Legislative Assembly of December 13, 1893, upon Coroners' Inquests.

A Practical Theory and Treatment of Pulmonary Tuberculosis. By Frank S. Parsons, M. D., Philadelphia, Pa. Philadelphia: The Medical Publishing Co., 1895. Pp. 2 to 77.

The One Hundred and Fifth Annual Report of the Board of Trustees of the New York Dispensary for the Year 1894.

A Biological Analysis of the Montreal Water Supply during the Period from November, 1890, to November, 1891. By Wyatt Johnston, M. D. [Reprinted from the *Montreal Medical Journal.*]

A New Method for Anchoring the Kidney. By R. Harvey Reed, M. D., Columbus, Ohio. [Reprinted from the *Journal of the American Medical Association.*]

The Diagnosis and Treatment of Floating Kidney. By R. Harvey Reed, M. D. [Reprinted from the *Columbus Medical Journal.*]

Notes on Movable Kidney and Nephrorrhaphy. By George M. Edebohls, M. D. [Reprinted from the *American Journal of Obstetrics.*]

Ainhum. By Walter L. Pyle, M. D., Washington, D. C. [Reprinted from the *Medical News.*]

The Antiquity of Syphilis, and Moses as a Health Officer. By J. T. Jelks, M. D., Hot Springs, Ark. [Reprinted from the *Journal of the American Medical Association.*]

The Importance of a Knowledge of the Diphtheria Culture Test. By A. P. Ohlmacher, M. D., Cleveland, Ohio. [Reprinted from the *Cleveland Medical Gazette.*]

On a Form of Congenital Thoracic Deformity. By John Thomson, M. D., Edinburgh. [Reprinted from *Teratologia: a Quarterly Journal of Antenatal Pathology.*]

Three Cases of Uterus Bicornis Sæptus; with a Report of Operations Performed upon Them. By George M. Edebohls, M. D. [Reprinted partly from the New York *Journal of Gynæcology and Obstetrics* and partly from the *Transactions of the New York Obstetrical Society.*]

The Technique of Vaginal Hysterectomy. By George M. Edebohls, M. D. [Reprinted from the *American Journal of the Medical Sciences.*]

Some Additional Experiences with Behring's Diphtheria Antitoxine and Some Remarks on the Use of Loeffler's Toluol Solution. By Edwin J. Kuh, M. D., Chicago. [Reprinted from the *Medical News.*]

Nævus Lipomatodes. A Report of a Case. By George T. Jackson, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

Adeno-carcinoma of the Skin Originating in the Coil Glands. By J. A. Fordyce, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

The Prevention of Venereal Diseases. By J. T. Jelks, M. D. [Reprinted from the *Journal of the Arkansas Medical Society.*]

Comparative Value of Mercury and the Iodides in the Treatment of Syphilis. By J. T. Jelks, M. D. [Reprinted from the *Journal of the American Medical Association.*]

Reminiscences of Dr. J. Marion Sims in Paris. By Edmond Souchon, M. D. [Reprinted from the *Medical Record.*]

Ricerche istologiche sull' origine del linfo-angioma congenito. Del Dott. Luigi Capitanio. [Estratto dalla *Puglia medica.*]

Contributo allo studio del linfangioma. Del Dott. Giuseppe Zuccaro. [Estratto dalla *Puglia medica.*]

Statistics on Variations, with Remarks on the Use of this Method in Anthropology. By Thomas Dwight, M. D. [Abdruck aus *Anatomischer Anzeiger.*]

Trattato di patologia speciale medica e terapia ad uso degli studenti e dei medici. Del Dott. Temistocle Santopadre. Vol. I. Sezione I. Malattie infettive esantematiche. Ferrara: Bresciani, 1894. Pp. 117 to 166. Fasc. 3.

Reports on the Progress of Medicine.

OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, A. M., M. D.

The Cerebral Centers of Vision and the Intracerebral Visual Nervous Apparatus.—Vialet (*Rev. gén. d'ophthal.*, Dec. 31, 1893) believes that the hemianopsia which complicates verbal blindness is due to a destruction of the deep intracerebral visual fibers. The most circumscribed cortical lesions capable of producing hemianopsia or cortical blindness, according as they are unilateral or bilateral, are situated on the internal surface of the occipital lobe and radiate into the region of the calcarean fissure. The cortical center of vision occupies the entire extent of the internal surface; it is limited anteriorly by the internal perpendicular fissure, above by the upper border of the hemisphere, downward by the lower of the third occipital convolution, and posteriorly by the occipital pole. The fibers, after having traversed the parietal and occipital lobes, end at the lower portion of the external corpus geniculatum and pulvinar, and at the external surface of the latter, by rising as far as the middle third of the optic lamina. The cortical center of vision is not completely isolated, for numerous associated fibers connect it with the visual center of the opposite hemisphere, with the center of visual memory, and with the zone of speech. The fibers which unite the two visual centers of the hemispheres with each other are represented by the callous fibers which pass by the pad or cushion of the corpus callosum. Those which connect the visual center of perception with the center of visual memory follow many paths; the most easily differentiated fasciculi are the transverse fasciculus of the cuneus and the transverse fasciculus of the lingual lobule. Those which connect the cortical visual center with the zone of speech are formed by the lower longitudinal fasciculus, and especially by the occipito-temporal portion of this fasciculus.

A New Operation in Glaucoma: Scleriritomy.—Nicati (*Rev. gén. d'ophthal.*, Jan. 31, 1894) recommends the following operation with a very narrow knife: The blade, with cutting edge downward, is introduced in the sclero-corneal margin in the inferior angle of the anterior chamber, passed horizontally across the anterior chamber parallel to the iris, and is brought out through the sclerotic. The blade is then turned on its axis ninety degrees with the edge toward the iris. This makes in the sclerotic an incision perpendicular to the first, and the aqueous humor at once pours out. The blade is then rapidly withdrawn, and the iris is divided at its peripheral attachment throughout the length of the wound.

Tumor of the Occipital Lobe with Hemianopsia.—Pic (*Rev. gén. d'ophthal.*, April 30, 1894) reports the case of a tumor of the embryonic nervous type, occurring in a young girl aged fifteen. It was developed at the level of the cuneus, lingual lobe, and fusiform lobe of the right hemisphere, having originated at the level of the fissure of the hippocampus minor. He draws the following deductions: 1. Hemianopsia, without being frequent, is not exceptional in cerebral tumors. It is of cortical origin or connected with a lesion of the conducting fibers. 2. If of cortical origin, it is caused by the development of a tumor on the internal surface of the occipital lobe, on the level with or in the vicinity of the fissure of the hippocampus minor. The hemianopsia is homonymous and bilateral, without hemiopic reaction, and is usually accompanied by the signs of papillitis. 3. The existence of a hemianopsia is of great topographical importance for the diagnosis of a cerebral tumor.

Treatment of Myopia by Discission of the Transparent Lens.—Pflueger (*Rev. gén. d'ophthal.*, May 31, 1894) recommends the discission of the lens in certain cases of extreme myopia, and gives the results of thirty operations. His patients varied from ten to forty years of age. The age of the patient was without influence upon the rapidity of absorption of the lens. The degree of myopia in these cases varied between ten and twenty-two dioptres. The diminution of the refraction which followed the discission was greater in the cases of extreme myopia than in those of a lower degree. The primitive visual acuity and the amelioration by the operation were better in cases of a moderate degree of myopia—less than seventeen dioptres. In children he puts the limit for operation at nineteen dioptres and in adults at twelve dioptres. In all the cases in which the operation was done the visual acuity was increased, and in several cases it was more than doubled. He never operates on more than one eye at a time, and always uses Bowman's needle. He has never seen any bad result follow the operation.

Tubular Glio-angeiosarcoma of the Retina.—Van Duyse (*Arch. d'ophthal.*, December, 1893) reports in detail a very interesting case of this nature occurring in a child aged two years. There were several types of vessels in the growth. 1. Capillaries in which the endothelium or the proper limiting membrane was intact, and the adventitia was in direct connection with masses of glioma cells. 2. Capillaries formed by a simple endothelial tube giving off short lateral buds distended and ectatic. In the vicinity of these teleangeiectatic capillaries the gliomatous tissue was especially exuberant. 3. Vessels more or less hyaline in structure surrounded by groups of cells. 4. Hyaline vessels still containing blood and in some cases thrombi. In some of these the globular degeneration noted by Klebs as a prelude to thrombosis could be seen. 5. Vessels entirely hyaline in structure in process of complete atrophy.

Clinical, Bacteriological, and Therapeutical Studies in Ocular Diphtheria.—Sourdille (*Arch. d'ophthal.*, January, 1894) calls attention to the value of a topical application in diphtheritic conjunctivitis consisting of glycerin, twenty grammes, and phenic acid, two grammes, as it is borne very well, by the eye and produces but slight and transient pain. The lids are everted, and thorough irrigation is made with some antiseptic solution. After all discharge is washed away and bits of membrane or necrosed tissue have been removed, a tampon of cotton is soaked in the solution of glycerin and phenic acid, and with this all the diseased surfaces are smartly rubbed. The application may be made twice a day, care being taken to avoid touching the cornea.

Treatment of Trichiasis and Distichiasis by Advancement of the Upper Lid.—Fernandez (*Arch. d'ophthal.*, February, 1894) advises the following operation: He incises the external commissure, detaches the upper lid for the height of a centimetre, and places beneath it a short flap detached from the temple. The commissure is then reunited. This method is based on the anatomy of the orbicular muscle, the fibers of which are inserted internally on the bone and externally in the skin. This arrangement renders possible the detaching and elevating the external extremity of the orbicular muscle without lessening its properties as a sphincter.

Neuroses of Secretion of the Lacrymal Gland; Lacrymation and Dryness of the Conjunctiva in Exophthalmic Goitre.—Berger (*Arch. d'ophthal.*, February, 1894) believes that the lacrymation occurring in exophthalmic goître is not caused by the exophthalmia and the absence of winking. The lacrymation may precede for several years all the other symptoms of exophthalmic goître, and may last for years after the exophthalmia has disappeared. Moreover, the dryness of the conjunctiva may appear at a period when the exophthalmia has disappeared. The lacrymation is due to a hypersecretion of the lacrymal gland, and the dryness coming on in the course of the same disease is caused by a diminution in the secretion of the same gland. The secretory nerves of the lacrymal gland are, in the beginning of an exophthalmic goître, in a state of irritation, and it is only at a later stage of the disease that these nerves become paretic.

The Field of Observation in Ophthalmoscopic Examination with the Upright Image.—Guilloz (*Arch. d'ophthal.*, February and March, 1894) defines the field of observation as follows: The actual size of that portion of the retina giving the ophthalmoscopic image perceived by the eye of the observer, this eye remaining immobile, as well as the eye of the patient. When the patient is emmetropic, the field of observation increases proportionally to the sum of the apparent pupillary openings of the observer and the patient, and inversely to the distance between the eyes. The field of observation is weaker or smaller in the myope than in the emmetrope, and diminishes with the degree of the myopia. In hypermetropes the field of observation is greater than in emmetropes, and increases with the degree of hypermetropia.

Corneal Transplantation; The Causes of Failure and the Remedy.—Cole (*Amer. Jour. of Ophthal.*, March, 1894) claims the following advantages for his method of operating:

1. It admits of the use of as large a graft as may be necessary, yet the elastic openings in the limbus, if properly made, will hold it in good position.

2. The elastic band also gives circular and uniform union without any bulging at points intervening between the flaps because of the size of the graft.

3. It furnishes the largsst surface possible for union, offering the best opportunity for healing in a manner to allow the greatest freedom for the passage of nutritive elements through the lymph channels of the cornea itself.

4. Large additional channels of nutrition are afforded, without the intervention of any corneal scar, through the large conjunctival flaps.

5. The cicatrix is placed obliquely through the most vascular area in the border of the cornea, and therefore in the most favorable position.

Two Cases of Sarcoma of the Lacrymal Gland; Removal and Microscopic Examination of the Tumors.—Lawford and Collins (*Roy. Lond. Ophth. Hosp. Rep.*, xiii, 4) report two cases of this nature, both in males. They conclude that in every case of sarcomatous growth involving the lacrymal gland, there is room for doubt as to whether the growth originated in the gland or spread to it from surrounding structures. In the two cases reported the situation of the new growth between the gland tubules, which were separated by it, inclined to the belief that the fibrous stroma of the gland was the starting point of the sarcoma.

The Condition of the Vortex Veins of Twenty Eyes enucleated for Primary Glaucoma.—Stirling (*Roy. Lond. Ophth. Hosp. Rep.*, xiii, 4) gives an interesting report on these cases. In eleven of the twenty eyes the chorioid showed inflammatory patches, but nothing abnormal was found in connection with the vortex veins except in three of the eyes examined. The chorioidal inflammation always consisted of small but distinct aggregations of cells between the vessels, but not in the vessels themselves, not limited to any particular layer of the tissue, and never running into one another in such manner as to give rise to the appearance of a change affecting it throughout. In no case was the lumen of any chorioidal vessel diminished by exudation pressing on it from without. In one case there was a slight inflammation round one of the vortex veins at its chorioidal extremity. In a second case there was an inflamed patch in the wall and circumvascular sheath of a vortex vein in the sclerotic, and the lumen was partially filled by a blood clot; and in the wall of a vein just external to the sclerotic, and close to the vortex vein, was a markedly inflamed patch. In a third case there were patches of inflammation in the vein wall and circumvascular sheath, and in the chorioid; in the lumen of the main vessel were circular bodies, about one fourth the size of a nucleus, which gave a bright reflex from their center. These were too large for any of the known cocci, and the author was not able to determine what they signified.

Secondary Transverse Films of the Cornea.—Usher (*Roy. Lond. Ophth. Hosp. Rep.*, xiii, 4) gives the results of his microscopic studies of these films as follows: 1. The antero-posterior diameter of the cornea is increased at the situation of the film. 2. A formation of laminated fibrous tissue is present at the anterior part of the cornea, between the epithelium and the normal situation of Bowman's membrane; in most cases this tissue contains a granular material. 3. Granular hyaline or entirely granular bands are found at the posterior parts of the new tissue, in some cases sharply distinguishing it from the substantia propria. These bands vary much in length, shape, and arrangement, but their breadth was that of a normal Bowman's membrane. The number of the granules in the bands varied considerably, and the more numerous they were the deeper was the logwood staining. The band is sometimes straight and sometimes undulating. 4. Where the hyaline granular bands exist, Bowman's membrane was never found in contact with the epithelium. 5. Degenerative changes were found in the epithelium at the situation of the film. 6. A portion of the film, treated with strong hydrochloric or acetic acid, showed by the evolution of bubbles that calcareous material was present.

Primary Sarcoma of the Orbit, with Notes on Twenty-nine Cases.—Stirling (*Roy. Lond. Ophth. Hosp. Rep.*, xiii, 4) gives the following results of his investigations: The average at the time of the first appearance of the growth was twenty-eight years and two twelfths, and varied from three weeks to seventy-five years. Of the twenty-nine cases, 17·5 per cent. had received a previous injury to the orbit. Of the known duration before the first operation, the average was eighteen months; the shortest was three weeks; the longest was eight years. Recurrences were noted in seventeen cases, or 58·6 per cent., and the total number of recurrences was thirty-five. The average time elapsing between operations and recurrences was twenty months. The shortest interval was a day or two; the longest was thirty-eight years and a half.

In those patients who suffered from recurrences the tumors were found to be composed of round cells in fourteen cases; of mixed round and oval cells in four cases; of mixed spindle and oval cells in one case; and of simple spindle cells in eight cases. In four cases the primary tumor was composed of round cells, the recurrence of spindle cells; and in one case the primary growth was of mixed spindle and oval cells, and the recurrence of round and oval cells.

Where the growth alone was removed without clearing out the contents of the orbit, ten cases in all, no recurrence had taken place in one eighteen months after the operation, and recurrence did at some time take place in the remaining nine cases.

In those instances in which all the contents of the orbit were removed, sixteen in all, there was no recurrence in seven cases.

The Anatomy and Pathological Physiology of the False Membranes of the Conjunctiva.—Sourdille (*Arch. d'ophthal.*, April, 1894) draws the following conclusions from his investigations: There is no essential difference, from an anatomical point of view, between a croupous conjunctivitis and an interstitial conjunctivitis. Both are the result of the same process, which in one case is arrested in its course or aborted, either from slightness of infection or from the resistance of the tissues, while in the other case it advances and continues, but always in the same sense. From a clinical standpoint it is well to preserve these two forms, the croupous and the interstitial, for in general they show a course and a gravity of prognosis very different from each other.

Injuries to the Eyes from Gunshot Wounds in the Temple.—Scheidemann (*Ctrlbl. f. prakt. Aug.*, December, 1893) tabulates the injuries to the eye to be expected from gunshot wounds in the temple as follows: 1. Laceration of the optic nerve, with immediate blindness. 2. Internal hæmorrhage and laceration of the inner coats of the eye, if the eyeball has been bruised by the shot. Vision may here be affected in varying degrees. 3. Paralyses of the ocular muscles, either isolated or in connection with the symptoms above mentioned. The shape of the eyeball is usually maintained, either because it usually lies in front of the course of the bullet, or because of its globular shape and its tendinous envelope.

Papillitis following Extraction of a Tooth.—Hermann (*Ctrlbl. f. prakt. Aug.*, December, 1893) reports the case of a child, aged five years, from whom a decayed tooth was extracted without an anæsthetic. A few hours later he complained of failing sight, and the next morning he was entirely blind in both eyes. The ophthalmoscope showed marked papillitis in both eyes without hæmorrhages. The cause was probably a hæmorrhage at the base of the brain which pressed upon the chiasm and right abducens, due to the extraction of the tooth while the entire muscular apparatus of the boy was in a state of extreme tension.

Subconjunctival Sublimate Injections.—Gepner (*Ctrlbl. f. prakt. Aug.*, January, 1894) recommends the use of an ordinary Pravaz syringe, with the end of the needle somewhat flattened and sterilized in the flame of a lamp. He injects about one twentieth of a milligramme of sublimate at a dose. He first uses cocaine, and makes the puncture one centimetre deep in the conjunctiva and about one centimetre from the corneal margin. The little bleb formed by the injection may be caused to disappear by slight rubbing beneath the closed lids. A bandage is then applied for one day. Severe pain follows the injection, and lasts for several hours. The next day there is marked injection and considerable swelling of the conjunctiva, with extravasations of blood. At the point of injection the conjunctiva becomes adherent to the subconjunctival tissue and capsule of Tenon.

A Case of Movable Fibroma of the Orbit.—Goldzieher (*Ctrlbl. f. prakt. Aug.*, March, 1894) reports an interesting case occurring in a young man. In the left orbit there was a nodular tumor, which extended from the outer canthus nearly to the outer margin of the cornea, and was covered by the very vascular conjunctiva. Diplopia appeared when the patient looked to the left. The tumor was shelled out of the orbit without any difficulty through a simple incision in the conjunctiva. It was ovoid, tolerably hard, three centimetres long and two centimetres thick, and seemed to be encapsulated. It consisted of densely crowded connective-tissue fibers, with a few fusiform cells.

The Results of the Operative Treatment of High Degrees of Myopia.—Von Schröder (*St. Petersb. med. Woch.*, 1894, No. 4) recommends the following operative procedures: Preliminary iridectomy; four weeks later, discission of the capsule of the lens; a few days later, extraction of the swollen lens. The danger of the operation in myopic eyes otherwise normal is by careful antiseptic methods reduced to a minimum. Even in extensive degeneration of the chorioid and retina there is but little danger of retinal hæmorrhage. The changes in the eye induced by the operation do not increase the liability to detachment of the retina or to chorioiditis, to which these eyes are always exposed. Cases of myopia of more than D. 14, which do not bear glasses, may have the operation done, and as early in the life of the patients as possible.

The Effect of Antipyrine in Certain Forms of Atrophy of the Optic Nerve.—Valude (*Ann. d'oc.*, September, 1893) thinks that antipyrine by its dilating action upon the peripheral vessels may produce a favorable result in those forms of optic-nerve atrophy which depend upon a vascular alteration of the interstitial connective tissue which forms the stroma of the optic nerve; that is, in atrophy due to ascending or descending neuritis. The effect of this drug is so feeble and limited as to cause much uncertainty of a good result, even in favorable cases.

Perimetry by Means of Colored Pigments. — Ole Bull (*Ann. d'oc.*, September, 1893) divides the alterations of the color-sense induced by disease into three classes: 1. Diminution of the color sense to the same degree for the four principal colors. 2. Diminution of the color sense for red and green, while that for yellow and blue remains normal. 3. The shades of green are confounded with blue, and those of yellow with red; at the same time the yellow and red appear deeper than the blue and green. The first of these alterations accompanies lesions of the optic nerve due to an interruption of conductibility and to circulatory disorders of the retinal vessels. The second accompanies certain forms of primary atrophy, such as those due to tabes and to nicotine poisoning. The third accompanies all affections in which the light sense is considerably diminished in a moderate light, as in affections of the external layers of the retina, syphilitic chorio-retinitis, or retinitis pigmentosa.

Secondary Images.—Snellen (*Ann. d'oc.*, October, 1893) gives the results of his investigations on this subject as follows:

1. An instantaneous illumination produces secondary images which present three different phases.

2. The first two phases are the more sharply defined the shorter has been the illumination.

3. The third phase appears only when there is complete absence of all external light. Objective light causes this secondary image to disappear.

4. During the fixation of a feebly illuminated surface an image is perceived which is successively bright and dark. These changes indicate the existence of retinal fatigue, followed immediately by re-establishment of the usual sensitiveness.

Pseudo-retinitis Pigmentosa. — Germain and Dianoux (*Ann. d'oc.*, October, 1893) classify the anomalous observations of retinitis pigmentosa of the latter author in three groups:

1. Classical retinitis pigmentosa, but with a rise in stationary acuity, occurring after a normal course of the disease, characterized by hemeralopia, marked diminution of the acuity of vision and narrowing of the visual field, with classical pigmentation.

2. Annular scotoma, leaving both the periphery of the retina and the macula intact. No hemeralopia. Visual field almost normal. Pigmentation in the affected zone. Characteristic papilla. The condition remains stationary, after improvement of the vision by treatment, sometimes for years.

3. Central scotoma. No hemeralopia. Pigmentation localized in the macular region. Papillæ rosy. Arteries fusiform.

The Visual Function and the Cuneus.—Brissaud (*Ann. d'oc.*, November, 1893) draws the following conclusions from his investigations:

1. The radiating optic fibers, or sensitive fasciculi, are the best defined fasciculi of all the mass of the centrum ovale. Their origin in the opto-striated nuclei has been definitely settled. Their termination in the occipital region is equally satisfactorily

determined. They end in the inferior portion of the lingual lobe, from the posterior extremity of this convolution to the uncus of the hippocampus behind the amygdaloid nucleus. A certain number also pass into the fusiform lobule and even into the third occipito-frontal convolution.

2. Properly speaking there are no fibers of projection of the cuneus upon the nuclei of vision, or, if there are, they are so extremely few in number that their destruction could not alone suffice to produce hemiopia. The lesions of the cuneus alone are incapable of producing hemiopia by a rupture of the fibers of projection. If the lesions of the cuneus have this result, the mechanism of hemiopia is not that which is usually advanced.

Unilateral Central Disturbances of Vision and their Relations to Hysteria.—Knies (*Ann. d'oc.*, January, 1894) gives a *résumé* of the symptoms as follows: 1. The diminution of the visual acuity is always present, but total blindness is rare. 2. Concentric limitation of the visual field is a constant symptom, but bears no proportionate relation to the degree of diminution of the central vision. 3. Dyschromatopsia is almost always characteristic. It is identical with the color sense of the periphery of the normal retina and with that of the central part observed in feeble illumination. It is analogous to that met with in atrophy of the optic nerve and in toxic amblyopia. The fields for red and green are considerably narrowed and in advanced cases entirely abolished. The dyschromatopsia is ordinarily proportionate to the narrowing of the visual field. The reaction of the pupil to light varies; in amblyopia it may be preserved or be entirely wanting. The reasons which point to a central origin of these symptoms are the following: Symptoms observed in hysterical patients and accompanied by other disturbances of sensibility (anæsthesia of the cornea, conjunctiva, and face) which are incontestably of central origin. These symptoms may appear or disappear without apparent cause; they may be provoked or suppressed by suggestion. They change from side to side after certain manipulations. Their intensity is variable and depends upon the attention of the patient. The faculty of orientation is preserved in spite of the limitation of the field. The retina and optic nerve are normal even after long duration of the functional troubles.

Two New Methods of Curing Ectropion due to Blepharitis and Senile Ectropion.—Fukala (*Ann. d'oc.*, January, 1894) describes two operations which he maintains are new:

1. For ectropion due to blepharitis: The skin is dissected from the tarsus throughout its whole extent; a needle is introduced through the skin in the gap separating the tarsus from the skin, about four or five millimetres below the free border of the lid and from three to four millimetres from the external canthus. The needle is then passed through the corresponding portion of the tarsus, but very near its upper border. The needle is then passed again through the tarsus, three millimetres nearer the lacrymal punctum, and then again through the skin near the first puncture. The ends of the suture are then tied over a bit of cotton wadding or plaster. A similar suture is then introduced near the inner canthus. This operation resembles that of Gayet.

2. Senile ectropion: Fukala excises all the everted parts and sutures the skin to the conjunctiva, avoiding as far as possible the lacrymal punctum. A dressing and bandage are then applied and allowed to remain three days.

The Equality of the Retinal Images in Corrected Axial Ametropia and in Emmetropia.—Lagrange (*Ann. d'oc.*, February, 1894) draws the following conclusions from his investigations: In axial myopia, as in hypermetropia, the correcting glass placed at the anterior focus has for its object the advancement or withdrawal of the nodal point for a distance equal to the excess or deficit in the length of the axis of the eye. This displacement of the nodal point may be established in an elementary manner by a geometrical demonstration.

This displacement of the nodal point enables us also to understand why the retinal images are equal both in emmetropia and in corrected ametropia.

Purulent Chorioiditis with Streptococci occurring spontaneously in the Course of General Septicæmia with Purulent Arthritis.—Veillon and Morax (*Ann. d'oc.*, May, 1894) report in detail a very interesting case occurring in a man aged thirty-seven. This patient had a purulent arthritis as one of the results of a general medical septicæmia, and in the course of this disease a suppurative chorioiditis was set up by the streptococci without any anterior affection of the eye and without traumatism. The examination of the pus from the joints and from the eyeball showed the existence of the streptococci. The method of entrance of the micro-organism into the circulation remained completely obscure throughout.

A Rare Form of Bullous Conjunctivitis.—Berry (*Ophth. Rev.*, March, 1894) reports a case of this nature in a woman, aged forty-seven. About a third of the tarsal surface of the conjunctiva of each upper lid was marked by an irregularly stellate cicatrix. These cicatrices were superficial and only slightly puckered at their centers. One year previously the lids had been much swollen and painful for three weeks, during part of which time the patient could feel little bladders lying under them. This attack in the eyelids occurred contemporaneously with an eruption on the face and shoulders which was called dermatitis herpetiformis. The appearance of the conjunctival scars was very different from that of those caused by pemphigus.

Blinding of the Retina by Direct Sunlight.—Mackay (*Ophth. Rev.*, March, 1894) believes that the first retinal function which is modified by a sunlight injury to the human eye is the capacity for observing after-images at the affected part. The whole phenomenon seldom lasts more than a few minutes, and its disappearance is followed by a prompt recovery of the normal retinal function. The persistence or reappearance, on closure of the eye, of a sun-image which does not rapidly undergo alterations in color may perhaps be taken as the mark of a retinal stimulation which has slightly surpassed the physiological limit, but at the same time it is an indication of cellular vitality at the injured part. It is an unfortunate characteristic of this affection that the injured eye is usually that one which had previously the acuter vision. The state of the color sense at the injured part has not received much attention. The scotoma is positive and has generally been projected as a gray spot or luminous disc. The defect for colors extends over a larger area and is more profound than for white. The revolving movement and the oscillation complained of by some patients are curious accompaniments of the scotoma for which no satisfactory explanation has yet been given. The symptom is usually very persistent, and constitutes a factor to be reckoned with in framing a prognosis. As regards the ophthalmoscopic picture, if the case be seen within the first week, and the lesion be slight and limited to the fovea, only a little flattening and loss of the light reflex is likely to be found. During the second week there is a tendency toward increase of pigmentation from proliferation of hexagonal epithelium, and this may replace or obscure the signs of exudation.

The prognosis for a decided improvement in vision and a practical cessation of discomfort is, on the whole, favorable, but complete recovery is exceptional. The data to be considered in forming our prognosis are as follows: 1. The time which has elapsed since the accident. 2. The degree of impairment of visual acuteness for test types and colors. 3. The extent of the scotoma, and especially of the absolute area contained within it. 4. The gravity of the ophthalmoscopic changes. 5. The presence or absence of oscillating movement. 6. Metamorphopsia. 7. The local and general healthiness of the patient. 8. The refraction of the eye. 9. The natural pigmentation of the fundus.

As regards the treatment, the protection of the eyes from great alterations of light by the constant use of dark glasses with side pieces (London smoke, No. 3), and rest from eye work during the first month, is all that is indicated.

Rare Anomaly in the Retinal Circulation.—Axenfeld (*Kl. Mon. f. Aug.*, January, 1894) reports a rare form of abnormal circulation in the retina, occurring in one eye of a man, aged twenty-nine years. The development of the papillary veins was so slight that only a portion of the retina could have been nourished by them. Still, there was no sign of retinal atrophy, and, though the arteries were but slightly reduced in caliber, the veins were enormously distended. Both above and below the region of the disc there was a large vein which received numerous branches from the rest of the retina, and then ran, not toward the disc, but toward the periphery, and finally disappeared in the chorioid.

A New Method of Operating for the Relief of Ptosis.—Pergeus (*Kl. Mon. f. Aug.*, January, 1894) recommends the following method of operating: He makes a curved incision through the skin from one canthus to the other, just beneath the margin of the orbit, and dissects the skin free. At the upper margin of the incision he introduces a double-edged knife beneath the skin upward as far as the shaved eyebrow, and dissects the skin free from the subcutaneous tissue from one end of the eyebrow to the other. Close to the edge of the flap and in the median line he then introduces a suture armed with two needles, which are then brought out parallel to each other through the skin above the eyebrow. When these two lines of suture are drawn tight, the pedicle of skin with the lid is brought into the desired position and the two ends are then to be tied over a bit of rubber tubing. Similar sutures are inserted at the nasal and temporal sides of the flaps. An incision is then made from one end of the first incision to the other through the skin of the lid, parallel to the ciliary margin and three millimetres above it, and the edges of the two incisions are brought together with five or six sutures, so that the oval flap of skin of the lid is covered by the skin flaps in the new position of the lid. Pergeus maintains that this method of operating has all the advantages of Panas's operation.

(*To be continued.*)

New Inventions, etc.

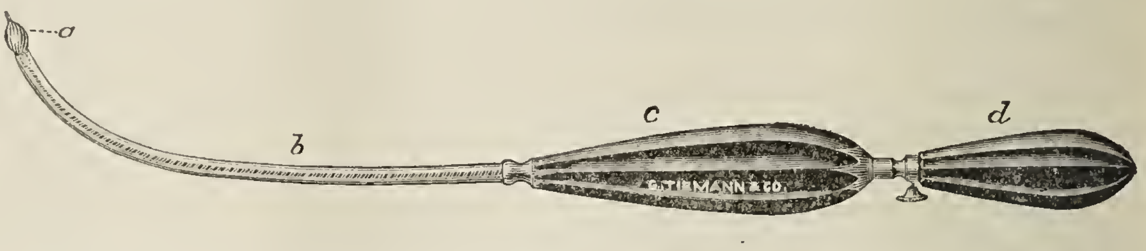
A FRONTAL SINUS DRILL.

By A. Worrall Palmer, M. D.

This simple instrument is presented to the profession because by its employment it is considered that the internal operation upon the anterior ethmoidal cells and frontal sinus is simplified and made much less dangerous than by the usual methods in vogue—*e. g.*, by curette or spoon.

I desire to call attention to the following points in its favor: The burr *a* is four millimetres and a half in diameter, a size which will pass through the average anterior portion of the bulla ethmoidalis without cutting the os planum into the orbit. The burr is an improvement on the curette or spoon, as it cuts away a more even or smooth-walled canal through the ethmoidal cells. The latter rather digs or breaks away the thin cell walls, leaving irregularities in which the end of the flushing catheter may be caught, and sharp edges which may cut off the end of a rubber catheter if such is used for subsequent washing of the cavity. The writer has had a small portion of a French rubber Eustachian catheter almost severed in this way.

On the projecting extremity of *a* is a probe point, which in operating is placed in the outlet of the naso-frontal canal (after the anterior portion of the middle turbinated has been exsected), and by it the course of such canal can be followed, thereby avoiding encroachment on the os planum and especially obviating the possible accident of passing through the thin or permeable portion of bone between such canal and the cerebral cavity. It is blunt at the point so that it can not be forced into such bone, still small enough to be insinuated into an obstructed naso-frontal canal that has been cocainized for the operation.



The curve of the cannula *c* is such that by resting the straight portion on the inferior margin of the anterior nares the probe and burr are forced against the mouth of the canal in the direction of the axis of the canal.

This cannula passes entirely through the handle, so that if desired, the instrument can be used for washing.

The handle *c* is of a convenient shape and size to hold in the same manner as a pencil.

The burr is connected by a cable passing through the cannula *b* and handle *c* to the revolving handle *d*. Manual motion by the operator's hand is preferable to that obtained from an electric motor, because by it the cutting is more delicately and slowly accomplished.

The bone to be perforated consists only of several thin cell walls, and these, when diseased, are usually softened by necrosis, so that the rapidly revolving electric drill might crush through into the brain cavity.

By means of a thumbscrew on *d*, that handle can be removed, the burr and connecting cable withdrawn from the cannula *b*, and the whole thoroughly and antiseptically cleansed.

While holding the drill in position, using the inferior margin of the anterior nares as a rest or fulcrum, the operator is cautioned to draw the handle downward, thereby urging the opposite end (burr) anteriorly, so making it almost impossible to enter the anterior cerebral fossa. At the same time, by a rotary motion of the handle, urge the burr toward the median line of the patient, thereby lessening the possibility of perforating the os planum.

The manufacturers, Tiemann & Co., are making an attachment by which it can be connected with an electric motor.

Miscellany.

The Action of Malakin as an Antipyretic and Antirrheumatic.—To the February number of the *Edinburgh Medical Journal* Dr. Robert Abernethey contributes an article on this subject, in which he says that he has used malakin in a number of cases of pyrexia of rheumatic and other origin, and has been struck with its good effects. Malakin, he says, is said to be a salicylideneparaphenetidine which, in the presence of dilute mineral acids, is decomposed into salicylic aldehyde and paraphenetidine. This decomposition taking place in the stomach, the salicylic aldehyde, on being absorbed, is, according to Schmiedeberg, oxidized into salicylic acid in the tissues of the body and can be recognized in the urine. The author gives the following case in detail, as it illustrates, he says, a troublesome condition occasionally met with in protracted cases of rheumatic fever: The patient, a woman, twenty-nine years old, was admitted into the hospital on May 12th. A few days before she had had a chill with fever and pain in the joints, beginning in the left thumb and soon spreading to nearly every joint in the body. The signs were typical of a severe attack of acute rheumatism, with copious sour perspiration. The temperature was 101° F., and the pulse was 90. There were severe pain and swelling of various joints, particularly the knees and wrists.

At first salicin was given in doses of thirty grains every two hours, and this was continued until the 17th, without, however, having a very marked controlling effect on the symptoms. The pulse and the breathing became accelerated, and some consolidation was noticed at the base of the left lung. The temperature varied between 99° and 102°. Quinine sulphate was substituted for the salicin, but with no effect on the temperature, although the symptoms in the left lung entirely disappeared. The patient lost a good deal of flesh, and paraldehyde was administered in order to induce sleep. The joints began to improve, and on June 29th the right knee was the only one affected, but there was still a good deal of effusion in it. On this date, however, the patient had a sudden very severe rigor, and the temperature rose to 104·8°; there was copious sweating, with severe pain in the right knee joint. The ice-pack was applied and brandy given, with the result that the temperature fell to 101·8° in five hours. Fever persisted, however, and the patient continued to lose flesh.

No albumin appeared in the urine, and the articular swelling began to disappear under blistering and rest. On July 7th the temperature rose again to 105·4°, with a rigor, but fell rapidly after sponging with ice-water and the administration of stimulants. These pyrexial attacks occurred from time to time, and toward the end of July the temperature curve assumed a more zig-zag course instead of its previous continued type. During the first part of August several attacks occurred, and after the 12th they took place almost daily.

On the 28th of August the author began the use of malakin and gave it to the patient in doses of fifteen grains three times a day, and at once there was a cessation of all pyrexia; the temperature became normal and remained so until the patient left the hospital. She was then quite well, fairly strong, and able to walk about the ward, and nothing remained but a faint systolic bruit accompanying, but not replacing, the first cardiac sound.

Dr. Abernethey was so convinced of the good effects of the drug in this case, after other antipyretics had failed, that he has given it since in a good many cases of pyrexia due to various causes; among others, a case of rheumatic fever with advanced mitral disease, in which it controlled the symptoms admirably without apparently causing any considerable depression. In two cases of croupous pneumonia occurring in children he has used the drug, and it seemed to have a beneficial effect, both children making remarkably good and speedy recoveries. Such results, he says, encourage him to make further trials with the drug in cases of pyrexia in which either phenacetine or the salicylic group has been found useful, but especially the latter, as its use seems to be attended with a minimum of the bad effects sometimes seen under the administration of those drugs.

Indian Hemp.—In the *British Medical Journal* for February 9th Mr. R. Cowan Lees, of Glasgow, has an article on this subject in which he remarks that it has always been difficult to understand why the resin of this plant should alone be recognized in the *British Pharmacopœia*, more especially when, in works on the physiological action of this drug, it is stated that in India several preparations are employed by the natives to produce its stimulating and exhilarating effects, among which watery infusions are specially mentioned.

During the author's visit to India some years ago he noticed that several modes of using the herb were employed by the natives. So far as he could observe, watery infusions were commonly used, but whether in combination with other substances or not he does not know. This fact, however, led him to try what benefits might be derived from the use of a preparation of the plant not depending for its virtues on the resin alone.

The men who first obtained the resin in a state of comparative purity state that it is a "brown amorphous solid, burning with a bright-white flame, and leaving no ash; it is powerful in its action when taken internally, and two thirds of a grain act as an active narcotic, while one grain produces complete intoxication."

When the extract is kept for some time it becomes hard and brittle and less potent in its action, a circumstance which goes a long way, says the author, to prove that such a condition is the result of loss of volatile oil from the resin, and pharmacists are advised not to employ for medicinal use that which has become old. Bentley and Trimen state that "both Hindus and Mohammedans use this herb in smoking, or by simple infusion in water." Gunjah, the guaza of the London market, has but a faint taste, with a peculiar but not unpleasant narcotic odor. These properties depend in a great measure on the volatile oil and on the resin. The latter is considered by some as the more important constituent of the plant. Dr. Personne, says Mr. Lees, regards the volatile oil as the sole active principle, and he states that "when the volatile oil is inhaled a distinct sensation of shuddering, with motor excitement, followed by prostration and syncope, is experienced." Again, Dr. Preobraschersky found a volatile alkaloid—very plentiful in the flowering tops—which he considers somewhat similar in its action to nicotine.

The author, feeling satisfied that water was capable of dissolving at least a portion of this volatile oil, had a strong aqueous extract prepared from the flowering tops of the female plant, of the usual strength of liquid extracts, and from its use he has obtained good and satisfactory results. It possesses the anodyne and soporific action generally ascribed to the resinous extract, although in a modified degree. It has the characteristic odor of the hemp, and has a beautiful deep amber color; it is miscible with water, and therefore there is no difficulty in combining it with other liquids, and it presents no unseemly appearance repellent to a patient.

Liquor cannabis indicæ, says the author, in all his experience gives all the beneficial effects without the drawbacks of the tincture, which are sometimes met with even when using a medium dose of it. It does not seem to interfere with the secretion of mucus from the bronchial glands, which renders it superior to opium in certain cases, while in pulmonary affections generally it acts most favorably as a soporific and anodyne.

Mr. Lees states that his greatest experience with the drug has been in the treatment of phthisis pulmonalis, and in these cases he says he can not speak too highly of it, for not only does it most perceptibly relieve the cough, but it aids the patient by its stimulating and exhilarating qualities, supplying a remedial agent in a manner which, in his opinion, no other drug can so beneficially do. In indigestion with constipation, and also in many children's affections, especially where nervous symptoms are present, it has also done good service. The author does not suppose for one moment that it will displace opium where severe pain is a prominent symptom, but he feels sure that in many cases it may be substituted for opium with great advantage.

The dose which he commonly employs is half a fluidrachm for an adult, but it may be increased to a drachm in many cases; while for children doses according to the age may be adopted, although, he says, he has noticed that children are somewhat less susceptible to it than adults.

A Chemical Antidote for Chloral Poisoning.—The *Glasgow Medical Journal* for February publishes an article on this subject by Dr. John Dougall, of Glasgow. When chloral was first used, says the author, its hypnotic action was thought to be solely due to the generation of chloroform from it by the alkalies of the blood; its effects on the body generally were, and indeed still are, held as almost identical with those produced by chloroform. This view, however, he says, has been disputed on the grounds that the quantity of chloroform which a full dose of chloral is capable of producing is quite inadequate to cause the hypnosis and anæsthesia that have been observed, also that the greater part of the chloral is exhaled from the lungs unchanged, and that small quantities of it may be found in the urine, but no chloroform. Whatever facts or theories, however, says Dr. Dougall, there may be regarding the manner of the hypnotic and anæsthetic action of chloral, there can be no doubt about its chemical composition and affinities, and, in particular, that it is almost at once decomposed, at and above 60° F., outside of the body in an alcoholic solution of potash into formate of potassium and chloroform, and, as the author has proved by trial, somewhat less quickly in an aqueous solution of potash.

Assuming, he says, that a person has taken a poisonous dose of chloral, say eighty grains, and that there could with safety be given, as a chemical antidote, twenty-seven grains of potash, this amount being the quantity by weight in the formula required to decompose eighty grains of chloral—in such a case, says the author, there are strong *a priori* grounds for assuming that in about fifteen minutes the chloral in the system would be entirely changed into formate of potassium and chloroform, or, at least, that so much of it would be decomposed that the residue would be harmless. But would not the potash, he asks, or the amount of its formate, or of the chloroform thus produced, be as lethal as the chloral? Undoubtedly twenty-seven grains of potash swallowed at once, even much diluted, would cause serious symptoms. But if even half that quantity was given in divided doses—say seven grains every hour—in warm milk, gruel, or barley-water, it seems very probable that by this means no serious irritation of the gastro-intestinal tract would be the result, and that in a short time so much of the chloral would be decomposed as to render the rest at least non-lethal.

The liquor potassæ of the *British Pharmacopœia*, says Dr. Dougall, contains about a grain of potash in sixteen minims, and the maximum dose stated is sixty minims. Hence, he says, to give seven grains of potash is equal to giving a hundred and twelve minims of liquor potassæ. He thinks it may be assumed that this quantity, highly diluted, might be given without fear of causing unfavorable symptoms. By this means twenty grains of the chloral would soon be decomposed, thereby neutralizing its lethal power to a certain degree, if the potash is given before the patient is too far gone to be afforded relief by this means; then, if in an hour after a similar dose of potash is given in the same way, this would reduce the chloral in the system to forty grains, a quantity quite within the bounds of safety for an adult, provided there is no heart trouble.

Dr. Dougall says that he has proved by experiment what has been stated by others—namely, that the carbonates and bicarbonates of potassium and of sodium also decompose chloral; but their action, particularly that of the bicarbonates, is very slow, and, besides, a much larger quantity than of potash is required, also a heat much above that of the body. With regard to the action of formate of potassium, it merely causes a peculiar eruption of the skin, which soon disappears when the use of the drug is stopped. This eruption is well known to habitual chloral-takers, and seems to prove that chloral is decomposed in the blood as stated.

With regard to the probable effects of the chloroform which would be generated by the decomposition of forty grains of chloral, the author finds that this quantity of chloral requires 13·5 grains of potash for its decomposition, which results in the production of 28·5 grains of chloroform, equal to 21·5 minims. As much larger amounts of chloroform (from half an ounce to four ounces) have been swallowed and recovery has followed, and as it is likely that the greater part of that which is generated in the blood by the decomposition of the chloral is exhaled as fast as it is produced, Dr. Dougall thinks that nothing serious need be feared on this point.

The American Inspection of Emigrants in France.—The *Progrès médical* for January 19th says that several newspapers have published a dispatch from Washington, according to which the French and German governments have protested against the presence, in certain French and German ports, of the American medical inspectors who control the embarking of emigrants for America. The American government is said to have replied that the diplomats and consuls were not, from the nature of their functions, competent to exercise the control with which these inspectors were charged—a useful function, says the *Progrès médical*, for it saves the American government from being obliged to return to France or to Germany those emigrants who do not fulfill the requirements for admission into the United States. The matter, moreover, has terminated in the most satisfactory manner, for the American medical officers have obtained from the French government all the facilities they could desire for the accomplishment of their mission.

The Treatment of Frostbites.—The *Lyon médical* for January 27th publishes the following suggestions from M. Besnier and M. Brocq: For frost-bitten hands, bathe the hands in a decoction of walnut leaves; dry them and rub them with strong tincture of camphor, then dust them with the following powder: Bismuth salicylate, 150 grains; starch, two ounces and a half. For allaying the itching at night a mixture of a grain and a half each of rose water and tannin and an ounce and a half of glycerin should be rubbed on the hands, and this is to be followed by the use of the powder.

If the hands are ulcerated, they should be wrapped in walnut leaves softened in hot water.

Another remedy the efficacy of which has often been witnessed is three ounces of fir balsam and fifteen drops of hydrochloric acid. This should be applied to the affected parts twice a day.

THE NEW YORK MEDICAL JOURNAL, March 9, 1895.

Original Communications.

SPONTANEOUS GANGRENE FOLLOWING TYPHOID FEVER.*

By L. HARRISON METTLER, A. M., M. D.,
CHICAGO.

Literature contains many isolated reports of cases of dry and moist gangrene following typhoid fever, but the systematic study of this occasional and sometimes fatal sequel is still wanting. The subject was first broached by Bourgeois d'Etampes, in 1857, before La Société médicale des hôpitaux de Paris. Dr. Charcellay, of the Hospital of Tours, had a case in 1843 in which the whole left side of the face underwent mortification. Patry many years ago referred to gangrene as a sequel of typhoid fever and associated it with an arteritis—a view in which Hayem could not concur. For so important a complication, it is surprising that so little mention has been made of it in the standard authorities. Reynolds, Bartholow, and Wilson do not allude to it at all. Flint states that he never saw a case, while Keen is sponsor for the assertion that Trousseau never saw a case. I find, however, that Trousseau referred to a case reported by Dr. Boudeau wherein gangrene of the right foot took place in a child ten years of age. Unlike either Patry or Hayem, he attributed the accompanying arteritis to the clot acting as a foreign body upon the walls of the blood-vessels. Murchison and Hutchinson each devote but a brief paragraph to its consideration. Broadbent and Liebermeister say nothing about it. Fagge merely mentions the possibility of a thrombus of the femoral vein with an attendant liability to pulmonary embolism. Strümpell makes no reference whatever to gangrene following enteric fever. Osler assigns a short and incomplete paragraph to it. Most of the works on surgery that I have consulted simply mention the possibility of its occurrence. The fullest treatment of the subject that I have been able to discover is W. W. Keen's Toner Lecture, which, however, is dated 1876.

And yet this is not such an uncommon sequel of typhoid fever as all this reticence on the part of the authorities would lead one to imagine. I have seen two well-marked cases—one in a child ten years of age, in which amputation of the right leg had to be performed; the other in a woman, seventy years of age, in which both femoral vein and artery were obstructed, ultimately causing death. Both cases have already been placed upon record.† Out of one hundred and thirteen cases of gangrene following fever, collected by Dr. Keen, forty-three followed typhoid fever. Barchoud‡ has tabulated some twenty cases of arterial obstruction following typhoid fever, and of these eight proved fatal. During an epidemic of typhus and typhoid in Finland in 1865, Estlander saw thirty-four cases, all of which, however, followed typhus fever except one. Most of the writers who have considered the subject at all do not report more than one or two cases that have come under their observation. As the result of a rapid glance through the more recent literature, I have made notes of cases reported by Sallès, Hanquet, Wedewsky, Gosse, Drewitt, Fränkel, Donkin, Newbolt, Cushing, Lucas-Championnière, Keim, Long, Koehn, Chew, Laporte, and Grancher.

Among the predisposing causes of this complication of typhoid fever are lowered body vitality, mental depression, and an unsanitary mode of life. It is more frequent, therefore, in epidemics and in times of disaster. Most of the cases occur prior to the middle period of life. In Keen's collected cases the ages varied from fifteen to twenty-five years. In my own two cases they were ten and seventy years of age. In those I have collected from the later literature they were from eleven to thirty-two years. As typhoid fever itself is a disease of the early half of life its complications would necessarily correspond. Both cases observed by me were in females. Of eighty-one cases of Keen's list, fifty-six were in males, twenty-five in females. Of nine patients in my list whose sex was reported, six were men, three were women. It is therefore predominant in the male sex. In both cases reported by me it occurred in the lower half of the body; in the calf of the right leg of the girl, in the right leg and part of the thigh of the woman. Out of ten of my collected cases the obstruction was discovered in the lower extremities, usually the left, in six instances, once in the left cheek, once in the mesenteric vessels, once in the left carotid. When it occurs in the cerebral arteries, the complication is usually classified among the neurotic, because of the hemiplegia that results. In one hundred and twenty-six of Keen's cases it took place seventy-seven times in the extremities, chiefly the lower, and in twenty-two cases in the peripheral districts of the vasomotor system, such as the ears, nose, and genitals. This clearly demonstrates that it is a complication of the peripheral vascular apparatus.

This peripheral distribution of the trouble led the earlier investigators to attribute it entirely to the weakened heart action and slackened blood current. Even to-day many lay great stress upon this mechanical cause. Keen is so convinced of the tremendous importance of this that he declares it "will more readily and rationally explain the causation of the gangrene," even in those rare cases where there is no clot, "than any specific action of the indefinite though undoubted poison of the fever." A moment's thought, however, ought to convince one of the inadequacy of such a simple explanation. Arterial obstruction with resulting gangrene is far too rare a complication to be attributed solely to a condition which obtains with almost invariable constancy in enteric fever. Except in the very mildest cases the typhoid heart always manifests a dangerous weakness until far into convalescence, and yet vascular obstruction occurs quite infrequently in the disease. We must not be misled by the fact that this complication usually appears in the third week of the fever, and not infrequently when convalescence has become well established, for there is still something more than mere blood stasis needed to account for its wide distribution, comparative infrequency, and insidious onset. In Wedewsky's case a symmetrical gangrene appeared two years after the attack of fever and was attributed "to the toxic action of the products of the activity of the typhoid bacillus."

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* Read before the Chicago Medical Society, January 21, 1895.

† *Philadelphia Medical Times*, Feb. 19, 1887.

‡ *Paris Thesis*, 1881.

Pathologists at the present time are generally agreed that the obstruction of an artery by a clot is in the vast majority of cases at least the cause of the gangrene, but as to the cause of the clot there is still a diversity of opinion. An endocarditis distributing emboli which finally become fastened in some narrowed portion of the arterial system, and so become the nuclei of the future thrombi, has been designated as one cause. If this were the case we should expect the gangrene to appear in other parts of the body quite as frequently as in the lower extremities; but, as a matter of fact, out of a hundred and twenty-six localities affected in the cases cited by Dr. Keen, seventy-seven were in the extremities, and seventy-two of these in the legs. Furthermore, endocarditis, according to Wilson, is a very rare complication of typhoid fever. In neither of the two cases reported by me could the slightest indications of it be detected.

Another explanation of the appearance of the clot has been the combined effect of (*a*) "the altered blood"; (*b*) "the weakened heart"; and (*c*) "the mechanical difficulties in carrying on the circulation, especially in distant parts." While these may undoubtedly be powerful factors in assisting in its formation, it does not seem to me, when we study the history of the cases thus far reported, that any one of these conditions, or even all three combined, are immediately the cause of the clot. The same conditions are present in other severe forms of fever, such as pyæmia, puerperal fever, diphtheria, and pneumonia, and yet mortification of extensive areas due to an arterial obstruction is never so imminent as in typhoid fever. Moreover, in typhoid itself these conditions are very constant and well marked, but the gangrene, as Dr. Keen truly says, "is happily a rare complication." Let us consider for a moment each of these conditions, whose combined effect is said to produce the clot. Barié, writing in 1884 for the *Revue de médecine*, states that the spontaneous occlusion of an artery by what Virchow calls "marasmic clots," or clots due simply to a certain condition of the blood, "is almost impossible" in typhoid fever, because of the peculiar kind of change in the blood of that fever, represented by a "diminution of the hæmoglobin, of the red corpuscles, and plasma." And again, as Green says, "to whatever cause it may be due, an increased tendency of the blood to coagulate is probably *never more than a predisposing cause of thrombosis*." Thus the "altered condition of the blood," aside from the fact of its bearing a specific poison of a high degree of virulence, can not be accepted as any more than a predisposing cause of thrombosis, especially if the endothelium remains intact. Secondly, as to the "weakened heart," it needs but a moment's reflection to understand that this also is nothing but a predisposing cause in producing a retardation of the blood current. A weakened heart is characteristic of many other diseases in which gangrene is scarcely ever known to occur. Thirdly, as to the "mechanical difficulties in carrying on the circulation." This and the weakened heart condition act much in the same way to produce a stagnation of the current, a distended state of the arteries, and an impaired nutrition of the arterial walls, through a consequent abnormal condition of the vasa vasorum, the whole terminating in an arteritis of greater or less degree. But how are we to explain the tendency to gangrene that so generally accompanies typhoid fever—a fact upon which M. Behier laid marked stress so long ago as 1857—and its singular absence in other diseases in which arteritis of the same sort ought frequently to obtain, seeing that in them this condition of the heart and circulation is almost as common as in typhoid fever?

The more I have studied this question, the more am I convinced that the production of arterial thrombosis and subsequent gangrene in typhoid fever is due in by far the greater majority of cases to an endarteritis assisted by various mechanical factors. The immediate cause of this endarteritis is in all probability the fever poison in the blood in a condition of extreme virulence. It is the result of an intense toxæmia. That this is the state of the blood, or that this is its effect upon the inner lining of the arteries, is established by the "almost constant muscular degeneration" which is so peculiar to typhoid, and which has been attributed to an *inflammatory obstruction* of the arteries supplying the muscular tissues. In this way do Hayem and Martin explain the myocarditis and subsequent softening of the heart muscle. Giraudeau attributes the degeneration of the general muscular system to an incipient myositis and that of the various viscera to the hæmorrhagic infarctions all produced by the same cause—viz., a primitive obliterating arteritis induced by a highly poisonous condition of the blood. Arteritis has been attributed to the poisoned blood state in variola (Brouardel), diphtheria and marsh miasm (Lancereaux, Verneuil), tuberculosis (Lancereaux), syphilis, and rheumatism. Inflammation of the arteries from this cause is not, therefore, an uncommon affair. Of a hundred and thirteen cases collected by Keen, however, it is seldom stated that the arterial walls were diseased. This may easily be accounted for by the comparatively incomplete autopsies that were often made in these cases. So many of these cases occur in private practice, and they are, moreover, so rare, that unfortunately post-mortem examinations are hard to obtain. In neither of my cases was an autopsy permitted, though the symptoms in the case of the girl pointed obscurely to an endarteritis of the obstructed vessel. In Sallès's case it is expressly stated that there was an "obliterative arteritis," and in the more numerous cases of venous obstruction a phlebitis appears to have been a manifest cause. The signs of the arteritis, when it occurs, make their appearance first about the latter part of the third week, or the beginning of convalescence. The pain along the course of the vessel may be of a sharp, stinging character, or dull and aching. One patient likened it to the "stretching or tearing of the nerves of the limb." Movement, external pressure, or simply the erect posture increases it. There is occasionally violent throbbing of the blood-vessel, not infrequently felt in parts of the body situated at a considerable distance from the inflamed artery. Finally, the pulse beat becomes hard and wiry. As the vessel becomes less and less permeable, and the blood supply of the contiguous tissues diminished, there will be noticed a slight lowering of the local temperature, ofttimes as much as several tenths of a degree. The skin assumes a bluish or violaceous hue, while its sensitiveness is considerably enhanced. All symptoms of arteritis, and especially endarteritis, are exceedingly obscure, pain being the most reliable, and this having to be carefully distinguished from the pain of neuralgia, phlebitis, and lymphangeitis. It is from these obscure symptoms rather than from more exact autopsies that an obliterative arteritis has been given the credit of the formation of the clot. Among those who support the view of a general primitive arteritis occurring in typhoid fever, based upon the few autopsies made by themselves, may be mentioned Gigon, Hayem, Patry, Larroque, Behier, Bourdeau, Mercier, Masserell, and others. In view of this, as well as of the fact that "abnormality or removal of the endothelium is the essential condition" (Green) to the formation of the clot, it is difficult to harmonize the presence of the clot with the *reported* healthy condition of the arteries in so large a proportion of Dr. Keen's cases. I think we may safely conclude that the cause of gangrene following typhoid fever is an obliterative arteritis lighted up by a virulent toxæmia, and that its appearance and frequency are determined by the vitality of the patient's tissues, the degree of virulence of the blood-poison, and certain minor mechanical factors.

The prognosis depends upon so many attendant circumstances that it is difficult to form any decided conclusions. It is less favorable than gangrene under other conditions by reason of the exhausted state of the patient produced by the attack of fever. Exhaustion practically destroyed both of my patients, though the little girl lived six weeks after the amputation. Of Barchoud's twenty cases, eight proved fatal. Barker and Cheyne have recorded a case in which death occurred two hours and a half after gangrene had begun in the nose. In a few cases of obstruction a collateral circulation has been established, and in a still smaller number there has been a restoration of the lumen of the obstructed vessel. It is more common, however, for a line of demarcation to appear after the lapse of a few weeks and Nature to relieve the patient of the mortified tissues. I need say nothing in regard to the prophylaxis and treatment of this complication of typhoid fever, as they differ in no respect from the treatment of gangrene under other circumstances.

Columbus Memorial Building.

THERAPEUTIC EFFECTS OF CARBONIC ACID

IN DYSENTERY, IN THE VOMITING OF PREGNANCY, IN WHOOPING-COUGH, IN PROSTATITIS, AND IN IMPOTENCE

By A. ROSE, M. D.

In 1883 I published a paper entitled Carbonic-acid Gas as a Local Application to Chronically Inflamed Mucous Surfaces. In this article I described the method of von Ziemssen of inflating the large bowel by carbonic acid for the purpose of diagnosis and the reduction of abnormal positions, of strangulations, intussusceptions, and twistings of the colon. I spoke of the physiological effects of carbonic acid upon and its absorption by the skin. I came to employ carbonic acid in ulcers of the rectum, reasoning *at that time* that carbonic acid was a disinfectant and an antiseptic. I had been aware that Demarquay had made use of carbonic-acid gas in the treatment of chronic ulcers of the leg, that Johnson had reported excellent results from the application of carbonic-acid gas to diphtheritic ulcers, that Broca and others had applied carbonic acid in neuralgia of the bladder; that, in general, carbonic acid had been successfully employed in such forms of neuralgia as were amenable to local treatment, as, for instance, neuralgia of the uterus; that it was highly recommended in the treatment of amenorrhœa and dysmenorrhœa; that ulcers of the cervix uteri, upon application of a carbonic-acid-gas douche, ceased to be painful and healed promptly. It was also known to me that Scanzoni and Simpson had introduced the local application of carbonic acid into gynæcological practice.

Thus the beneficial effects of carbonic acid on ulcerating surfaces in general and on ulcers of the neck of the womb in particular suggested to my mind the idea of applying carbonic acid to the ulcerated mucous membrane of the rectum. The first case was one of obstinate dysentery:

Mary R., nineteen years and a half old; domestic. Fairly developed. Had been enjoying tolerably good health. On September 2, 1883, she was taken sick with fever, diarrhœa with tenesmus, and vomiting. The day following the stools contained matter and blood. At that period we did not yet distinguish amœbic, diphtheritic, and catarrhal dysentery. I saw her first on September 5th. I poured into the rectum both large and small quantities of warm water at varying intervals, while the patient occupied a recumbent position. I did this as I had often found it successful in relieving tenesmus. None of the drugs employed, such as calomel with opium, castor oil, tannin, bismuth, and lead acetate, had any marked or lasting effect. The patient remained feverish, and suffered greatly almost every night from frequent tenesmus, and continued to discharge blood and matter. The little relief she obtained was more from applications of ice to the abdomen than from any other means employed. On September 19th, after having anæsthetized the patient, I made a thorough examination of the rectum. The mucous membrane, as far as it presented itself to view, was swollen, of a dark-red color, and studded with deep ulcers thickly covered with matter. After having cleansed the rectum with water, I cauterized all the ulcers with nitric acid. The first night after this procedure the patient slept well, did not suffer from tenesmus, and felt better every way; the night following, however, she was as bad as ever.

Almost from the commencement of her sickness the patient had been coughing; physical examination showed slight dullness on percussion on the right side, below the axilla, between the third and fifth ribs, and, corresponding with this area, crackling sounds on inspiration. The patient being very much reduced by constant fever, restlessness, and pain, and, presenting this probably metastatic affection of the lung (if the case happened at present, we should look for amœbæ), her case appeared indeed a desperate one.

In the forenoon of September 27th I inflated the rectum with carbonic-acid gas, and this one application, which caused no discomfort or tenesmus, was at once followed by a change for the better. There was no fever on that evening, and very little tenesmus during the night; she slept well and improved, so to say, from hour to hour in every way. There was some matter and blood discharged, but only during the night following the first application; the next morning she had a natural evacuation from the bowels without either matter or blood, and never again discharged either. Tenesmus ceased gradually during the following nights. There was no more straining after October 1st. For nearly five days the bowels moved as often as five or six times daily, very little at a time, passages in the shape of small, hard balls; and as long as this was the case, I had the carbonic-acid douche applied three times a day. The applications, according to her statement, produce an agreeable sensation, and she asks for them. The patient then made a speedy recovery. The bowels since October 4th moved regularly and naturally once a day. There is still slight dullness on percussion on the right side and diminished breathing, but there are no more crackling sounds, and the cough has almost ceased.

I shall not occupy space with the report of other cases. Suffice it to say that whenever during the last eleven years I have applied the carbonic-acid douche to inflate the rectum in cases of dysentery, I have had the same gratifying result as I had in this first case.

Carbonic acid, when introduced into the large intestine, as a rule, does not pass the ileo-cæcal valve. Experiments on the cadaver have shown that inflation of the intestine has a certain limit corresponding with the limit of inflation of the intestine of the living. Neither in the living nor in the dead body can gas or liquid be forced through the valvula Bauhini while the abdominal walls are intact, and even with the abdominal walls wide open the passage of gas or liquid can only be accomplished when the injection is made quite close to the valve; when the injection is made from the anus it seems the ileum can not be inflated, or only imperfectly so, even when the abdominal walls are wide apart. It is not so much the valve itself which prevents regurgitation, but there are certain other mechanisms which secure a firm closure: probably the physical and physiological condition of the abdominal muscles, the action of the diaphragm, the difference between the lumina of the intestine at the one and the other side of the valve, and many other circumstances and arrangements. Altogether, the considerable power of resistance of the ileocæcal valve against regurgitation from the colon into the ileum is the effect of quite a number of factors. According to von Ziemssen's observation, it seemed as if this power of resistance of the valvula Bauhini was somewhat lessened during deep chloroform narcosis, and the small intestine then became measurably inflated. Nothnagel* reports a case of enterostenosis in which the patient's death was with certainty to be expected. Shortly before *exitus* a moderate amount, three hundred and fifty grammes, of a ten-per-cent. chloride-of-sodium solution, colored with carmin, was poured into the rectum under moderate pressure. Post mortem, the red carmin coloration was found as far up as forty-five centimetres above the valvula Bauhini. In two experiments made by Damsch* on patients the air forced in passed into the smaller intestine, although but a small amount of air was employed. In both these cases there appeared to be no resistance at all on the part of the valve. One was a case of old hemiplegia with symptoms of intestinal paralysis; the other was a patient who formerly had suffered from lead palsy. However, cases in which inflation made from the rectum extends beyond the valve are exceedingly rare.

Carl Fränkel† made experiments to study the effect of carbonic acid upon micro-organisms and found that certain bacteria could live and thrive almost as well in pure carbonic acid as in atmospheric air, that others could develop only imperfectly or slowly in CO_2, and that a third class did not grow at all, except when the cultures were exposed to a breeding temperature; the majority of the others, especially the saprophytes, did not thrive in carbonic acid, although they did not perish therein; they would develop again when brought into atmospheric air. Some bacteria, among them those of anthrax and cholera, are destroyed by CO_2, but not those of typhus abdominalis. Carbonic acid can not be considered as an antiferment. *Proteus vulgaris* is affected by it, however. Whenever carbonic acid acts as a germicide it will lose its effect when it becomes admixed with even small proportions of atmospheric air. Kolbe had said that beef kept in CO_2 did not putrefy for two to three weeks, but Steinmetz had found that there was simply no odor of putrefaction; the germs had actually multiplied. Dryness and CO_2 may prevent the development of the odor of putrefaction, but not the development of bacteria.

Early in the year 1884 I was called to Brooklyn as consulting physician in a case of incessant vomiting in pregnancy. All the usual remedies had been employed in vain. I for the first time suggested the introduction of carbonic-acid gas into the vagina, and exhibited my simple apparatus, which I shall describe presently, to accomplish this. My idea was to make use of the anæsthetic effect of the gas on the womb, especially on the os. I assumed that the vomiting in this case might be a reflex action, originating in neurosis of the womb. For some reason or another my suggestion was not accepted.

Later on, by experimenting with carbonic-acid gas in some other direction, I found that inflation of the rectum with CO_2 had a more decided stimulating effect on the sexual organs than its application to the organs themselves; probably because the rectum offers better facilities for absorption.

Dr. Adrian Schücking, of Pyrmont, Germany, arrived at the same conclusions, independently of me, in 1885. He published in the *Centralblatt für Gynäkologie* an article entitled Zur Therapie des Vomitus Gravidarum, in which he describes a case of incessant vomiting of pregnancy in which, other measures having failed, he irrigated the rectum with the carbonated water from the Pyrmont Spring.

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* *Berl. klin. Wochensch.*, 1889, 13.

* *Berl. klin. Wochensch.*, 1889, 15.

† *Zeitschr. f. Hygiene*, Bd. v, H. 2.

This water is highly charged with the gas. After the first application of this water the vomiting ceased. In the same paper he recounts a case of incessant vomiting in a girl with an ovarian tumor, in which, as in the preceding one, the vomiting was controlled by irrigation of the rectum with carbonic-acid water.

I confined myself to inflation of the rectum with gas, and never applied the gaseous water in cases of vomiting in pregnancy. The results were invariably gratifying. I have not met with another case of so-called incessant vomiting. Perhaps by my applying the carbonic acid early, graver symptoms were prevented in one or the other of those I attended.

In certain forms of intestinal obstruction it has been recommended to make use of an ordinary siphon bottle containing carbonic-acid water, to attach a rubber tube with a nozzle to the mouth of the bottle, and turn the latter upside down, if we wish to introduce the dry gas. This mode of procedure can not be employed in case of pregnancy. No matter how gently we press on the knob to discharge the gas, the effect, on account of the high pressure under which the gas is in the bottle, is unpleasant, perhaps dangerous. A severe shock is felt in the abdominal organs.

Since the year 1887 Bergeon has been using CO_2 in whooping-cough. He injects it immediately after the attack, under the condition that three hours have elapsed since the last meal, into the rectum. The child is allowed to eat at once after the inflation, as the digestion is not interfered with. If a fresh coughing spell sets in, the inflation is to be repeated as soon as in four hours after the one previously made. In very obstinate cases he inflates also during the night. According to Bergeon, even the severest forms require only a week of treatment. Bergeon has published much and spoken much on this subject in medical societies, but has not made proselytes. Recently it happened at a dinner party of medical men that he was sitting next to Professor Girod, who had been suffering for three months from whooping-cough and had tried in vain a number of remedies. Bergeon interested Girod in his method. Girod tried it with excellent result on himself and also on his children, who were at the time similarly afflicted.

I forget when and where I first read of the employment of carbonic-acid inflation in whooping-cough. It is since May, 1894, that I have been employing this method of treatment, and more recently I have had opportunity to order it in quite a number of cases among the patients whom I am attending for the St. Luke's Society of Grace Parish. In all cases except a few the reports I have received have been that the application of the gas had had an unmistakably good effect. Relief was observed in the very first days and the patients were entirely cured within from eight days to two weeks. As a rule, the children coughed less frequently after the first application; after four or five days' treatment they ceased coughing during the night; during the day they would cough only after they had been running or had had similar exercise. I attended a family in which the mother and two children were suffering from pertussis while they sojourned at a fashionable seashore hotel. In this family also the mother's sister, who remained in New York and only occasionally visited her sister and the children at the seashore, became affected and was subjected to the carbonic-acid treatment as soon as I had made the diagnosis. In all these cases the result was most gratifying. I do not lay down any rules, as Bergeon does, as to the frequency and the time of application. I only direct that the inflation be made at least two or three times a day. I have found that the result is the better and the more prompt the oftener the inflations.

I have to confess that I have learned that in two out of about forty cases of children treated for St. Luke's Association the mothers had reported that there was no improvement. Noteworthy is it that in both these instances the treatment with CO_2 met with success in other children of the same family.

CO_2, from whatever part of the body it may be absorbed, enters through the venous system into the lungs, and from there it is exhaled. Physiological observations have shown that by the acts of inspiration and expiration the larger upper air-passages are only ventilated, while the essential portion of the respiratory act, the exchange of CO_2 and O by means of diffusion, is executed in the alveolar domain of the lung, and that therein the phases of respirations are almost unconcerned. Thus we find a continuous moving of CO_2 upward and of O in the opposite direction. A necessary consequence of these conditions is that the air in the respiratory tract in the direction from the mouth toward the alveoli has gradually less and less oxygen, but more and more carbonic acid. A. Ephraim* assumes that by the increased amount of CO_2 passing from the blood into the alveoli an increased exchange and diffusion of the two gases is brought about, and corresponding with the increased exhalation of CO_2 there is, according to the laws of diffusion, also an increased influx of O toward the alveoli. Ephraim is also of the opinion that the more oxygen there is absorbed by the blood the more carbonic acid is given off; that between the blood and the air in the alveolar cells there is likewise a greater activity of diffusion under these conditions.

As the best method of introducing CO_2 into the system Ephraim recommends its administration by the rectum. He reports favorable results in cases of chlorosis, phthisis pulmonalis, bronchitis, asthma. He calls it a method to improve pulmonary ventilation.

According to this theory we can readily explain why the inhalation of pure oxygen or the much-advertised "compound oxygen" is of comparatively little value.

I have been treating prostatitis by means of a rectal cone. This is a metallic cylinder after the principle of a cooling or, as the case may be, warming sound, through which I pass ice water in acute cases to relieve the well-known excruciating pains of acute prostatitis, and warm water in the chronic stage of this affection to stimulate circulation. Recently I have substituted inflation of the rectum with carbonic acid, both in the acute and in the chronic stage of prostatitis, and find that it has a superior effect as an anæsthetic as well as a means to accelerate circulation.

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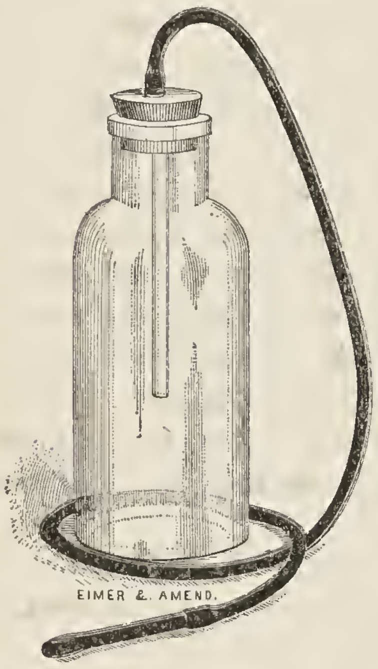
* Ueber die therapeutische Wirksamkeit der Kohlensäurezufuhr. *Deutsche Medicinal-Zeitung*, 1891, 25–28.

In the healthy state or in disease the inflation of the rectum with carbonic acid brings on a rather pleasant sensation of warmth, indicating increased circulation of the parts nearest the rectum.

Wertheim * recommends the application of carbonic-acid gas to the male sexual organs to relieve impotence. I have not been able to find a description of his mode of application. An irregular practitioner of this city, about twelve years ago, had the idea of imitating Demarquay's method of incasing an ulcerated leg in a rubber bag to be inflated with CO_2; he constructed a rubber bag to incase the penis and the scrotum for the purpose of applying CO_2 to these parts.

I have had only a limited experience, but it appears to me that inflation of the rectum with CO_2 is the best remedy to relieve impotence. The beneficial effect in those cases which I have been attending has been a prompt one. I am positive the carbonic acid thus applied acts as an excellent stimulus.

The apparatus which I employ is very simple: it consists of a bottle, holding a pint or more, with a wide mouth and a rubber stopper, the latter perforated so as to admit a glass tube, which at the external end is connected with a rubber tube, at the farther extremity of which is attached a nozzle to be introduced into the rectum. I fill the bottle one third full with water. The glass tube in the bottle is to reach as far down as one or two inches above the level of the water. Into the water I first put about six drachms of bicarbonate of sodium, and then, when everything is ready to administer the inflation, I add half an ounce of large crystals of tartaric acid (if pulverized acid is used, the development of the gas goes on too rapidly). The bottle is now closed quickly; the carbonic acid rises through the tube and inflates the rectum. Any position—Sims's, for instance—may be selected for the introduction of the gas. As soon as meteorism or a considerable sensation of tension in the rectum is perceived the nozzle may be withdrawn, or the patient may, while the nozzle remains *in situ*, free himself from as much gas as he can not well retain in the rectum. The inflation is then repeated as many times as is required until all the gas in the bottle is exhausted.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* Kohlensäure gegen Impotenz. *Wiener med. Jahrb.*, 1882, p. 10.

THREE CASES OF
BROWN-SÉQUARD PARALYSIS,
WITH REMARKS ON THE SENSORY TRACT IN THE HUMAN SPINAL CORD.*

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ATTENDING PHYSICIAN, ALMSHOUSE AND WORKHOUSE HOSPITALS.

OF the three cases here detailed, one, which I am able to report through the courtesy of Dr. Fisher, I have seen constantly in the neurological division of the Almshouse Hospital on Blackwell's Island. The two others have been at the Vanderbilt Clinic in the course of the past two years. Dr. Starr has kindly permitted me to look them up and examine them:

CASE I. *Right.*—Diminution of tactile sensibility; analgesia; thermo-anæsthesia; all reflexes present; no clonus; no loss of muscular sense.

Left.—Stab wound of neck; myosis; cilio-spiral reflex absent; paralysis, with contractures, of arm and leg; wrist, elbow, and knee jerks exaggerated; clonus; cremaster reflex diminished; abdominal reflex absent; no loss of muscular sense.

The patient, a Norwegian, aged forty-seven years, first found his way into the Almshouse Hospital last October for a malarial fever, which yielded quickly to quinine. His nervous condition being recognized, he was transferred to the Hospital for Incurables. I wish to take this opportunity to thank Dr. Witmer, the house neurologist, for his efficient assistance in the report of the case. The history which he tells is as follows: That soon after his arrival in this country, twelve years ago, he was stabbed in the back of the neck close to the skull on the left side. His history, both personal and that of his antecedents, previous to this time is of no medical interest. He was unconscious for three hours after receipt of this injury, and was removed to Chambers Street Hospital. On regaining consciousness he found himself hemiplegic on the left side. The fact that he was hemi-anæsthetic on the right side was not noticed until some time later. His head hung limp upon his right shoulder, and for five weeks he was in bed with his head in supports. At the end of that time the power began to return to the leg, and still later to the arm. Complete return of muscular strength has not occurred in either, and, though the leg is better than the arm, both are stiff. Sensations in these limbs were normal. On the right side tactile sensibility was but slightly affected, while sensation for pain and temperature was so much impaired that ordinary cuts, bruises, etc., caused no pain unless very severe. He could hold a piece of ice in his right hand indefinitely, and could not distinguish between hot and cold water. A bedsore developed over the right buttock, and there was a temporary paralysis of the bowels. All the improvement which occurred was complete in eight months. Since then his condition has been what it is at present. He has been subject to ulcerations on the right leg, and had incontinence of urine for one year after the injury. After that time the urine passed involuntarily if the patient were on his left side; now, if asleep on his left side, it passes involuntarily. He is a man of medium frame and fairly well nourished. On the right leg are numerous scars, results of local suppuration which has occurred since the injury. Examination of the vegetative organs is negative; mentality is unimpaired, and he is a man of fair intelligence. On the left side of the upper part of the neck, in front of the anterior border of the trapezius and about an inch from the median line, is a scar which is the result of a punctured wound. On palpation over this scar the finger comes upon the posterior arches of the atlas and axis. There is no pain on pressure in this region. The head is deviated to the right to a slight degree. All the cranial nerves are intact. There is slight hypermetropia, and the left pupil is somewhat smaller than the right. There is also a slight internal squint of the right eye, dating from childhood. While there is general weakness of the arm and leg on the left side, this is most marked in the muscles of the shoulder and in all the extensors. The finer movements of the left hand are impaired. The movements of the spinal column are natural. The left finger joints are stiff, owing to the tense condition of the flexor muscles. There is also stiffness of the joints in the left leg, dependent on a like cause. The left trapezius is more tense than its fellow. The muscles around the left shoulder joint are smaller than those on the right, but this difference is not too marked to be accounted for by a disuse atrophy. The circumference of the middle of the left arm is less than that of the right by an inch and a half. Between the left and right thigh the difference is an inch. These differences in size agree almost exactly with those of several cerebral hemiplegias of about ten years' duration which I have recently examined. The chest expansion is two inches and the diaphragm acts normally. As regards motion in the right hand, the patient says there is no actual loss of power, but it is not so strong as it was before the injury. The dynamometer shows a difference of nearly a half on the two sides—right, 65; left, 35. In walking, the patient makes a mowing movement with his left leg in characteristic hemiplegic style. There are slight fibrillary twitchings of the muscles of both shoulders, running down into the arms. These also are more marked on the left. All muscles respond readily to mild faradaic currents. The right knee jerk is active and the left considerably exaggerated, and a clonus may be easily elicited on the left side. While the superficial reflexes on the right side are preserved, on the left the cremasteric reflex is diminished and the abdominal could not be obtained. The left wrist and elbow jerks are active and are obtainable on the right. The right pupil dilates slightly on irritation in the supraclavicular fossa; on the left not at all. There are no sensory changes whatever on the left. The muscular sense, as determined by distinguishing similar objects of different weights by assuming certain muscular positions at command and by telling in what position the muscles are, is everywhere intact. The following description, amplified by the charts, applies only to the right side, including right side of genital organs. The sense of touch and pressure is impaired below a line drawn horizontally from the lower border of the thyreoid cartilage in front to the fifth cervical spine behind. The impairment of tactile sensibility is so slightly marked that it gives but few subjective symptoms, and in fact the patient's first knowledge of sensory involvement was his inability to distinguish between hot and cold water. The localization of touch is everywhere good. The loss of temperature sense extends below a curved line drawn from the third rib up over the shoulder, which descends again on the back to the third dorsal spine. This loss is well marked, and has become but little less since the injury. Analgesia, which is fairly complete, has still another distribution. It is present below a line which, beginning at the inner border of the clavicle, runs parallel with this bone for a third of its length, and then dips down for one or two inches and then ascends again over the shoulder and continues to the sixth cervical spine. The change in these anæsthetic areas, although present at the limits given, becomes most marked about an inch and a half below the superior boundary. There is not now, nor has there ever been, any hyperæsthesia. The absence of all atrophy, other than a disuse atrophy, indicates that the anterior horn is but little, if at all, involved. The absence of inco-ordination and presence of muscular sense would seem to indicate that the posterior median columns were intact. The motor change—viz., hemiplegia with contractures, increase of deep reflexes, and diminution of superficial reflexes—points clearly to a descending degeneration in the pyramidal tract. In fact, the motor symptoms are identical with those that might be furnished by a cerebral hemiplegia, even to the extent that the leg recovered more completely than the arm.

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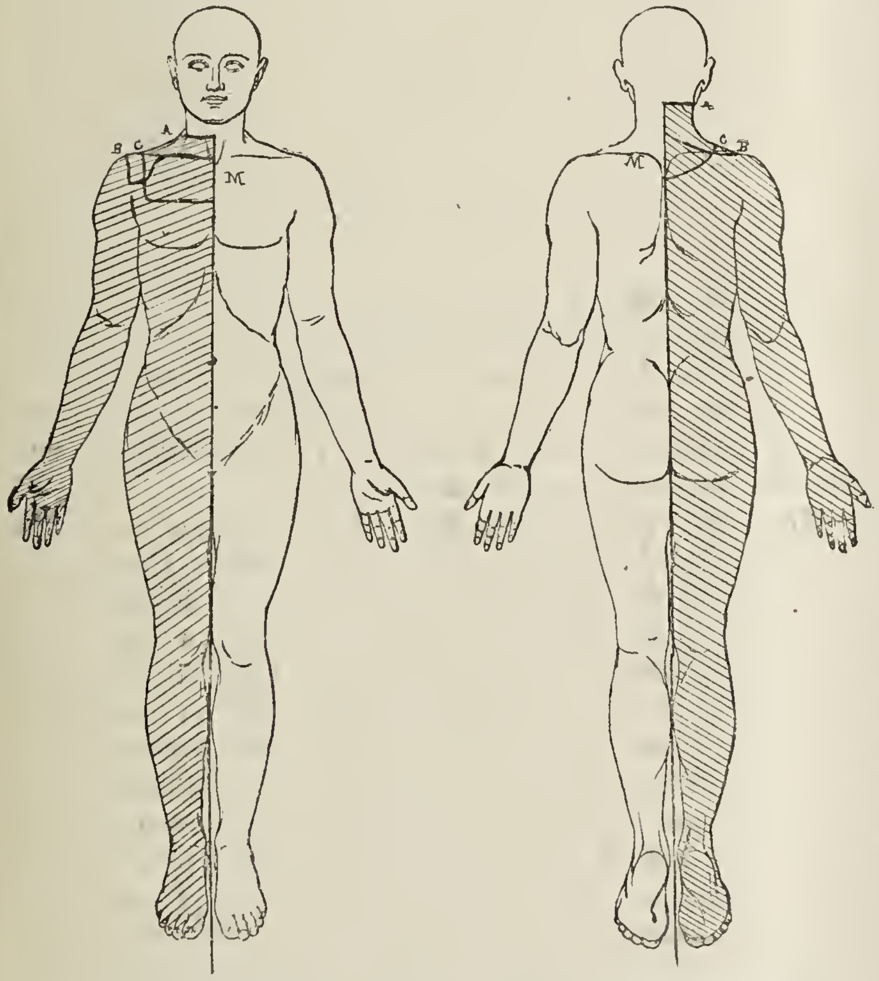
* Read before the New York Neurological Society, January 8, 1895.



Case I.—Below the line A M, diminished tactile sensibility; below the line B M, analgesia; below the line C M, thermo-anæsthesia.

This case makes an interesting contribution to the localization of sensation of the cervical segments. Injury of the entire cord above the fifth cervical segment is immediately fatal. Gowers's * case (with autopsy), in which a pistol bullet lodged between the atlas and axis and contused the right anterior half of the third cervical segment, is the highest lesion of the spinal cord reported in which examination of the various resulting symptoms had been made ante mortem. But in his case, while there followed a right spinal hemiplegia, the resulting left-sided sensory symptoms were incomplete. In the absence of recognizable injury to the anterior horn in my case there is some difficulty in determining the exact segment implicated. The knife blade entered, however, pretty surely in the immediate region of the atlas and axis; these vertebræ surround the second, third, and fourth cervical segments. From the fact that in lesions of the fifth cervical segment, hyperæsthesia extends over the top of the shoulder and in the region of the supraclavicular nerves,

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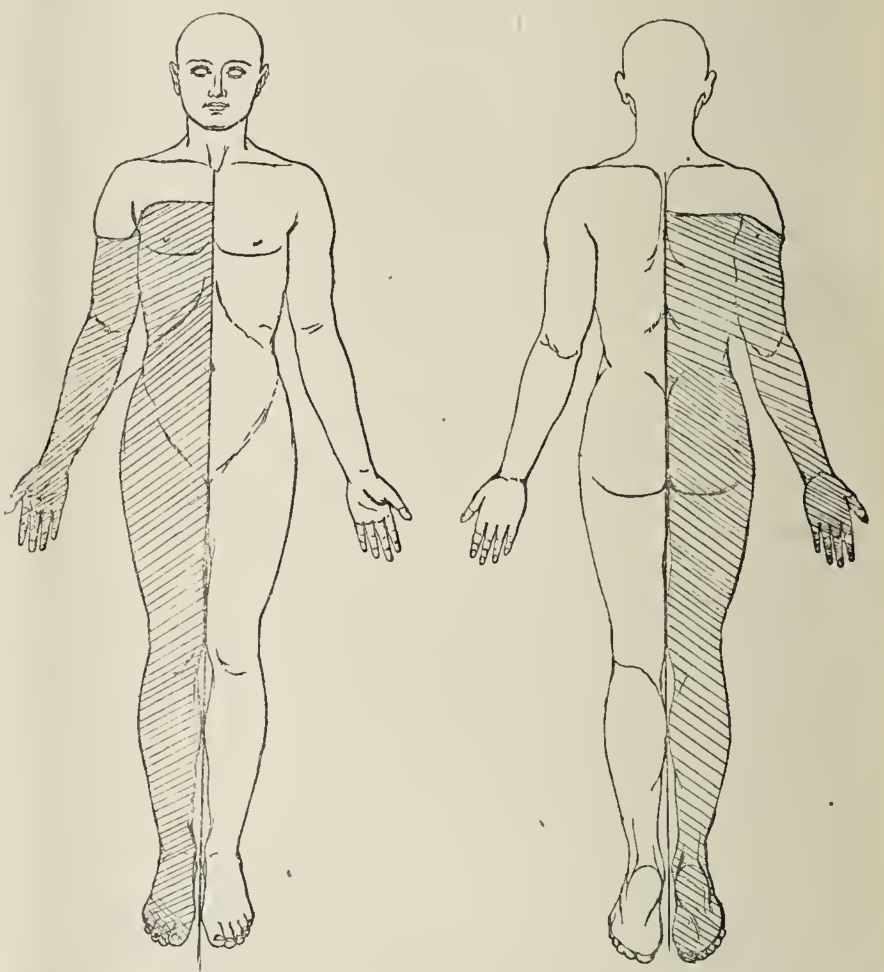
* Gowers. *Clin. Soc. Trans.*, xi, p. 24.

Starr* infers that this area represents the sensory distribution of the fourth cervical segment. The anæsthesia of this case corresponds very closely to these limits, and so furnishes additional evidence for the correctness of Starr's inference. Certain peculiar symptoms in Gowers's case led him to think that the sensory fibers have a different arrangement in the cervical cord than in segments lower down. In his case there were nowhere observed any diminution of tactile sensibility or any impairment of muscular sense. The sense of pain was diminished, but only below the left nipple. From this Gowers concludes: † "It is to be assumed, therefore, that the sensory path from middle and upper cervical nerves only crosses at the highest point of cord, above level of (present) injury." Turner, ‡ from his experiments on monkeys, was led to believe that the course of tactile sensation for the arms passed up both sides of the cord, while the fibers for pain and temperature sense decussated entirely on entrance. In support of this view he adduces some of Brown-Séquard's cases of injury to the cervical cord, where there was a bilateral anæsthesia, and one of Hoffman's cases, where there was loss of tactile sensation on the paralyzed side as well as on the side with the analgesia and thermo-anæsthesia. Now the different experiments on the sensory tract of animals are contradictory, and Brown-Séquard's cases appear to me hardly conclusive, while Hoffman's case was evidently (and so explained by himself) one where the posterior columns of both sides were involved. In the case which I have just described, where the lesion is certainly as high as the fourth cervical segment, the resulting hemianæsthesia has the characteristics of a clinical hemisection of the cord at lower levels—viz., intact sensation of the paralyzed side, diminution of tactile sensibility, with loss of pain and temperature sense on the opposite side. So the evidence that the fibers for tactile sensibility for the arms and clavicular regions have a different arrangement than those for lower areas appears insufficient.

Case II. *Right Side.*—Diminution of tactile sensibility; analgesia; thermo-anæsthesia; deep reflexes present; superficial reflexes active; no loss of muscular sense.

Left Side.—Stab wound of the neck; myosis; loss of ciliospinal reflex; paralysis, with contractures of arm and leg; loss of superficial reflexes; exaggeration of deep reflexes; no loss of muscular sense.

The second case, a patient of Dr. Morrell, of Yonkers, whom he has very kindly allowed me to examine, is very similar to the one just described. This man was stabbed in August, 1892, in the left side of the neck, well up. He recovered quickly from the traumatism, and shortly afterward commenced to regain power in the left side, which had been paralyzed. The leg recovered more than the arm. He now presents a left spinal spastic hemiplegia, with loss of superficial reflexes on paralyzed side, but with activity of these reflexes on the other side. There is left myosis and loss of left cilio-spinal reflex. There is no loss of muscular sense on either side, and no sensory symptoms have ever been observed on the left side. On the right side there is diminution of sense of pain and temperature. This analgesia and thermo-anæsthesia is marked in the leg and abdomen—much less so on the arm and trunk. There is also some diminution of tactile sensibility. Owing to the slight impairment on the upper extremity of these three forms of sensibility, it is impossible to define exactly the superior limit of involvement. However, the impairment for all three begins at about a line drawn from a point in the middle of the sternum, two inches above the nipple, which ascends over the shoulder and then descending slightly continues to the vertebra. This area of sensory loss corresponds to the distribution of the fifth cervical segment.



Case II.– Upper limits of anæsthesia indistinct.

Case III. *Right Side.*—Paresis, with slight contractures of leg; no loss of muscular sense; cremasteric reflex present; abdominal reflex absent; knee jerk exaggerated; clonus.

Left Side.—No loss of touch; analgesia; thermo-anæsthesia; no loss of muscular sense; cremasteric reflex present; abdominal reflex present; knee jerk absent.

This case is that of a man whom I saw about a year ago in Professor Starr's department at the Vanderbilt Clinic. He presents the symptoms of a right-sided lesion in the lower dorsal and upper lumbar cord. His own history or that of his antecedents throws no light on the ætiology. He is thirty-seven years of age, a machinist, married, and a resident of Newark. He is a man of temperate habits and more than ordinary intelligence. He denies syphilis, and no evidences of it are to be found. The disease commenced about a year and nine months ago and has been slowly progressive. He is a man of robust frame, well nourished, and symptoms of disease of his vegetative organs are not obtainable. He is more irritable than formerly. The only evidences of nervous disease are found in the lower part of the abdomen, and in the legs. The motor disturbances consist in weakness with some stiffness of the right leg. His gait, as observed in the right leg, is paretic rather than spastic. There are no hypertrophy or atrophy, no fibrillary twitchings, no inco-ordination, no pains or hyperæsthesia. On the left side, below a line drawn almost horizontally from the umbilicus to the vertebral spine behind, exists a well-marked analgesia, and below a line about an inch inferior to this one there is well-marked thermo-anæsthesia. On neither side is there any impairment of sensation for contact or localization of touch, and muscular sense is everywhere normal. (Muscular sense was tested by simply having the patient determine with closed eyes the position of the limb.) The cremateric reflexes are present on both sides, and while the left abdominal reflex is present the right is gone. The left knee jerk is gone while the right is active, and there is a slight clonus on the right side. There is some loss of bladder control and some lessening of sexual power. The bowels are somewhat constipated. The case appears to me as one of right unilateral gliosis of the lower dorsal and upper lumbar region.

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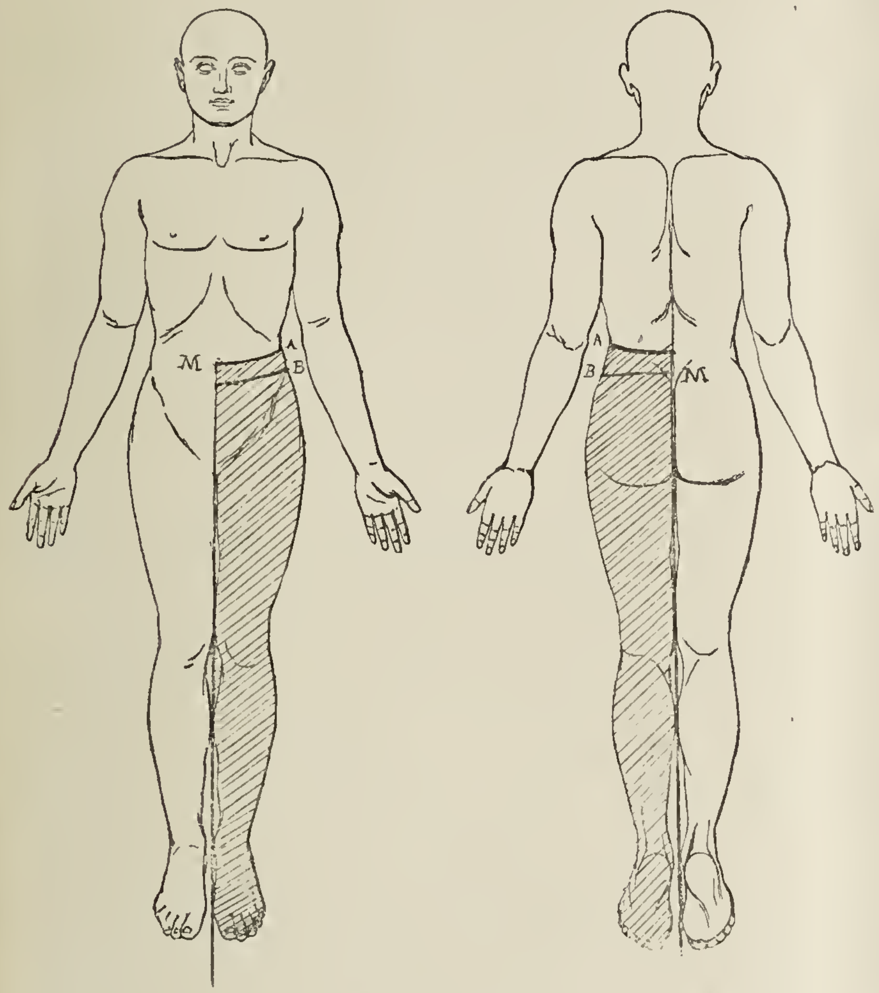
* Starr. *Brain*, 1894.

† Gowers. *Diseases of the Nervous System*, 1892.

‡ Turner. *Brain*, 1891.



Case III.—Below the line A M, analgesia ; below the line B M, thermo-anæsthesia.

These three cases of unilateral lesion of the spinal cord agree in most respects with the cases, about seventy-five in number, which have been reported since Brown-Séquard's first description. The motor disturbance has generally been one indicative of degeneration in the pyramidal tract—viz., paralysis, with spastic rigidity, but no marked atrophy. In some cases the anterior horn escapes injury; but from the now established fact that most muscles have a cellular representation in more than one segment, and as only a small portion of any one segment would be injured by a knife blade, it is fair to suppose, at least in cases resulting from stab wounds, that even if the anterior horn is involved, the functions of the destroyed cells are assumed by the uninjured cells of the affected segment, together with the cells of the other segments which are together devoted to any one muscle or muscle group, and so prevent recognizable symptoms of cell death in the anterior horn. There is on the side of the lesion an increased excitability of the deep reflexes while the superficial reflexes are diminished or lost.

In both of my cervical cases, in common with most reported cervical cases, there is myosis on the injured side, and in neither is a cilio-spinal reflex obtainable on the affected side. Hyperæsthesia and pain on the paralyzed side, a common and puzzling symptom, was present in but one of these three. The fact that fibers for touch, pain, and temperature decussate at slightly different levels is illustrated in the accompanying charts. Köbner * observed that tactile sensibility was involved higher than that for either pain or temperature. In my cases this difference is notable, the order of involvement being, from above downward, touch, pain, and temperature. In a case of spondylitis involving half of the cord, Rosenthal † found thermo-anæsthesia two spaces higher than analgesia. His patient finally recovering, the restoration of sensation, in point of time, was touch, pain, and temperature.

These unilateral lesions of the spinal cord prove, with a fair degree of certainty, that the fibers for pain and temperature undergo complete decussation immediately on entering the cord, and proceed uninterruptedly upward on the opposite side. The conduction of sensation of temperature, as the early loss of this sensation in syringomyelia indicates, takes place probably in the gray matter. Painful impressions may be transmitted in this part also. Gowers ‡ infers from his case that they go in the ascending lateral tract, but as in this case the gray matter, as well as the ascending lateral tract, was involved, it can not be excluded as a means of conduction of this form of sensation. The loss of muscular sense is the most uncertain of the symptoms of Brown-Séquard paralysis. It is retained in all of our cases, and in only a few of the reported cases has its loss been satisfactorily recorded. Its loss is generally believed to occur on the paralyzed side. Ferrier # reports a case of syphilis in which loss of muscular sense occurred opposite the paralyzed side and on the same side as complete tactile anæsthesia and diminution of the sense of pain and temperature. The value of this observation appears to me to be invalidated by the fact that a temporary paresis as well had preceded the sensory loss on this side. Also the complete loss of touch is so extremely rare in unilateral lesions that it of itself would suggest a bilateral involvement.

From this case, together with the results of experiments on animals, Ferrier believes that the muscular sense fibers undergo an immediate decussation on entering the cord. The correctness of this view, in man at least, is hardly upheld by the reported cases of unilateral lesion. From the pathology of tabes we infer that the muscular sense, at least in so far as the sense of posture and co-ordination is concerned, is transmitted by the columns of Goll. This is generally believed for man, although the experiments of Ferrier and Bechterew ‖ seem to prove that it is not true for monkeys. These results, however, do not agree with the earlier researches of Schiff, nor entirely with those of

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* Köbner. *Deutsch. Arch. für klin. Med.*, 1877, p. 19.

† Rosenthal. *Wien. med. Presse*, 1887.

‡ *Loc. cit.*

# Ferrier. *Croonian Lecture*, 1890.

‖ Bechterew. Quoted by Ferrier, *loc. cit.*

Gotch and Horsley.* Between the fibers for muscular sense and those for tactile sensibility there seems also to be a very close relation. While in unilateral lesions of the cord both of these sensory functions are often unimpaired when the muscular sense remains intact, I find but one case † in which the muscular sense was interfered with without disturbance of tactile sensibility. This also was a case of sclerosis, a form of growth in which the fibers of ordinary sensation are often left unimpaired. Also the fact that in uncomplicated tabes there is so frequently a loss of ordinary sensation in the legs lends force to the theory that the columns of Goll transmit some sensory impressions. This view is strengthened by the two following cases.

Hoffman ‡ reports a case in which he inferred from the direction of the wound that the posterior columns of both sides and the white matter of the left side of the cord were involved. The sensibility to touch was diminished in the left leg and there was a right-sided impairment of this sense. Müller # also reports a case quoted in Köbner's article, in which a complete hemisection of the cord, together with division of the posterior columns of the other side, resulted in complete loss of touch. Edinger believes that the sensations transmitted by the columns of Goll undergo decussation in the medulla. That all the fibers for tactile sensation do not cross in the cord, at least at levels of recorded injuries, the cases of Brown-Séquard paralysis would seem to prove; for when, in lesions of the cord, this function is entirely lost, there has been a bilateral involvement.

I can find no cases in which this sense was more than impaired, where the injury was certainly limited to one side; and, in fact, from the want of cases of complete cerebral hemianæsthesia there is no proof that a complete decussation of them occurs anywhere. The fibers which cross immediately on entrance are probably somewhere in the white matter of the lateral columns outside of the pyramidal tracts.

60 West Fiftieth Street.

HYPNOTISM AND CRIME.

A REPLY TO MR. THOMSON JAY HUDSON.

By WILLIAM LEE HOWARD, M. D.,
BALTIMORE.

For people altogether ignorant of the practical realities of hypnotism, Mr. Hudson's paper in your issue of January 26th may be conclusive; but there are existing facts to-day that I have in my possession which have an evidential value as showing great gaps of accuracy in Mr. Hudson's positiveness. It is with no spirit of opposition or jobation that I desire to point out a few errors in Mr. Hudson's predications. *Per contra*, it is a pleasant duty to thank one of a brother profession for calling attention to a subject that must ultimately be brought daily before medical and forensic circles. Four times in the past year I have been consulted by the courts in criminal cases—two of murder, two of seduction—the pleas of the defense being hypnotism; in one of the latter cases the pretense was set up by two young girls of seduction under hypnotic suggestion by a physician. As these cases are now on trial it does not behoove me to comment upon them.

I shall not attempt to go into the subject of hypnotism any further than to point out a few errors in Mr. Hudson's statements—errors that are shown by some of my practical experiments. I fully agree with Mr. Hudson as to the inefficiency, from a medico-legal view, of the value of "laboratory experiments," so I shall not refer to them. Mr. Hudson also deserves the thanks of the profession for his criticism of the notorious French laboratory experimenter and the ludicrous English writer. Credulity is sometimes stupid; but irrational incredulity may occasionally be even more so.

Mr. Hudson says: "It is also believed that in the hypnotic state a person is under the absolute dominion of the will of the hypnotist, and can be compelled to perform any act however repugnant to his feeling or his conscience."

In exceptional cases this is true, as I know that some subjects are absolutely "under the dominion of the will of the hypnotist." I say in exceptional cases this is true; and the law must cover these exceptional cases, as it will be in these exceptional cases that the question of criminal acts will arise. B. B.'s was one of these exceptional cases.* After stealing Dr. Brinton's watch he was brought out of the somnambulistic state, and when the watch was found upon him the shock was so great that for several days he was in a state bordering on mania. It was with great difficulty that I could bring him back to his normal condition. To be frank, I doubt if he will ever fully recover from the shock.

"It often happens in the course of *experiments* [the Italics are my own] in hypnotism two contrary suggestions will be made at the same time. The immediate result is that a great distress of mind is inflicted on the subject, and it often results in bringing him out of the hypnotic state with a severe nervous shock. Where the latter result does not follow, the stronger suggestion necessarily prevails." † True; and it is just these stronger suggestions, which Mr. Hudson admits sometimes prevail, that are liable to cause the subject to commit criminal acts if they are suggested to him by one of criminal intent. When Mr. Hudson mentions that in the course of the experiments two contrary suggestions may be made, he undoubtedly refers to "laboratory experiments." As I said at the commencement, we will leave those well-known experiments out of the question. It is undoubtedly true that in those experiments the subjects know that they are surrounded by friends and presumably honest men, and that no harm can come to them; so they carry out all the farcical suggestions.

Now, let us take those whose only contrary suggestion

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* Gotch and Horsley. *Croonian Lecture*, 1891.

† Charcot and Gombault. *Arch. de phys.*, 1873, p. 145.

‡ Hoffman. *Deutsch. Arch. für klin. Med.*, 1886.

Müller. *Beiträge zur path. Anat. und Phys. des Ruckenm.*, Leipsic, 1871.

* For a full report of this case see a paper read by request at the meeting of the Virginia State Medical Society, September, 1892.

† See an article in the *New York Medical Journal* for July 23, 1892.

is a self-suggestion, such as a determination not to be hypnotized, and those subjects total strangers to you and found unexpectedly anywhere, at their place of business or on the street.

Police officer N., of this city, was walking with me on his beat one evening when we met a fellow officer. Officer N. said to officer D.: "D., you had better look out; Dr. Howard will hypnotize you." "Oh, I know he can do it to some people," replied D., "but I'll be d——d if he can do it to me." Without giving him a moment's warning I said: "D., your eyes are shut; your eyes are tightly shut; you can't open them. You are a log of wood; you are falling down. There, you hear nothing; you feel nothing." The man was prone on his back. Officer N. had fled; it was too much for him; but he called out to me: "For God's sake, doctor, wake him up; the sergeant will be here in a moment." Upon my promise not to hypnotize him, officer N. came and strenuously and pitifully tried to arouse officer D. He might as well have tried to arouse the lamp-post. He told him that if the sergeant saw him it would be all up with him. Certainly, D. would have arisen under the circumstances had he not been completely "under the will of the hypnotizer." I brought him out of the hypnotic state just as the sergeant was coming up the street. Some weeks afterward I met D. on the street. On my going up to him he said: "Doctor, I am really afraid of you, and if you attempt to hypnotize me I will club you." He had his club in his hand. I said, "You can't move your arm." He made an effort to do so, and found that it was powerless. Then he tried to take the club in his other hand, when I suddenly clapped my hands in front of his face and told him that he could not move. I could then do as I pleased with him. The mere loss of the power of his arm was sufficient to produce complete hypnosis. This is rare, I admit, but it is to these exceptional cases that I wish to call attention to show that hypnotism *has* a place in medical jurisprudence. In this case, remember that the subject was an officer accustomed to obey. This accentuates Moll's statement—viz., "Persons accustomed to obedience can be hypnotized at the first attempt even against their will, and without the necessary straining of the attention." *

I had a medical student, a victim of the morphine habit, at a farmer's house just outside of the city. The farmer, who was a lusty, muscular man of some six feet in height, had become quite interested in the way I handled the patient. One evening, a few days after I had made this man's acquaintance, he walked with Dr. Robert Fawcett and myself to the station where we were to take the trolley-car to the city. At the place were several well-known business men of this city. The talk turned upon hypnotism, and the farmer said that he could not be hypnotized, and would not allow any one to hypnotize him. In a moment I had him under control, and finally told him that that darky was running away with his watch, and was now running across the fields. The man started off after the supposititious thief. Thinking that I had gone too far, as I was unable to call him back or to stop him, I started after him. The time was winter; the night cold. We managed to reach him as he was waist deep in an icy-cold stream. I got near enough to him to suggest that he follow me, and I finally had him back to the starting point. I here brought him out of the hypnotic state, but not until I had made the post-hypnotic suggestion that he had got wet coming with us from his house. Had I brought him out of the hypnotic state when he was in the stream the result to his mental and nervous system would have been serious.* I confidently believe that he would have gone on until he met with an accident, or, what would have been more serious, death. Further study of this subject convinced me that I could cause him to commit suicide or murder.

I have caused B. B., mentioned before, to defecate in his trousers. Please do not look on this from a vulgar point of view, for, after several years' observation of "laboratory experiments" in Europe, I determined to get away from this unsatisfactory method of arriving at conclusions. If, as Mr. Hudson states, the subjects will do nothing distasteful to them, as an investigator I was in duty bound to settle the question. While I have been judicially cautious in not giving to the profession cases of a doubtful nature, those of simulation, trained subjects, and willing subjects, I have not been so cautious in carrying my investigations to the utmost limits, stopping only at suicide, murder, and seduction, feeling that the subject is so full of great social actuality that we are bound to face it.

One evening I walked into a public place and found Dr. Burton Stevenson, of this city, and several friends. As often happens when I am around, the subject of hypnotism was brought up. With the exception of the doctor, all were strangers to me. One of the gentlemen scoffed at the subject as an actuality, and alleged that no one could hypnotize him. He had not time to repeat his words before he was completely under my control. It is not necessary to go into the details of how I completely turned the tables upon him.

I finally told him that he must go out to a certain lot, where he would fall down and neither hear nor remember anything. It was a cold, rainy night, about twelve o'clock, when we found him as I had ordered. He was dressed in evening clothes. With the exception of Dr. Stevenson, all the party were badly frightened. I brought him out of the hypnotic state, and have seen neither him nor the other gentlemen since. He still adheres to the statement that his friends are lying to him when they tell him that he was hypnotized and asleep in the lot. However, he has questioned Dr. Stevenson, and can not account for the ruin of his clothes.

A similar case happened in the *café* of the Equitable Building here. In the presence of a large number of gentlemen I walked up to a stranger to all and told him that he could not move his arm; that it was paralyzed; that he could not lift it. Finding that he had, in fact, lost the power of the arm, his facial expression told me that I had got complete control of him. After convincing the few gentlemen that were now left—for it is an amusing sight to see people slyly get away from my presence—I told the man that he must pay me the money he owed me. He gave me readily a large roll of bills, and, at my suggestion, told those present that he owed it to me. I told him, after an interval during which he was becoming suggestively drunk on water, that I owed him money, and that he must give me a receipt for it. The name signed to the receipt astonished me, as it was the first intimation I had had of who the man was. I then told him that he was drunk and must go home and sleep, and would not awake until six o'clock that evening. He had had nothing but water to drink, and I have proof that he greatly shocked his family and friends by his conduct, as he had up to that time stood above reproof among his large number of acquaintances. The suggestion to sleep was carried out to the hour. Often have I taken subjects like this at random. I might continue, but these are sufficient for my case. That these are exceptional cases I admit, but they nevertheless prove what I now maintain, that subjects can be hypnotized against their will. If this last person had been forewarned, it is very possible that I could not have done anything with him, and he would have been able to have one of those contrary suggestions Mr. Hudson so emphatically impresses upon the minds of his readers. But the expert hypnotist will not give the subject a chance to call forth "the instinct of self-preservation" if he contemplates using the subject as an automaton to carry out his ultimate object.

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* *Hypnotism.* By Albert Moll, M. D., Berlin, p. 45.

* See the paper read before the Virginia State Medical Society.

It will undoubtedly seem very strange to some persons how I can be so successful in getting such complete subjects. If I am in company with several people I can instinctively pick out my subject. This faculty may be due to practice and experience, or perhaps to some indefinable intuition. I do not know. Remember, also, that I am not mentioning my numerous failures.

Mr. Hudson further says: "It has often been said that a criminal hypnotist would have the power to induce the subject to produce abortion or commit suicide by means of suggestion. The instinct of self-preservation would constitute a potent factor in case of an attempt to instigate the commission of a murder. The subject would instinctively reason up to the consequences to himself in case of detection."

I think I have shown why this statement should be modified. The idea that only those known to have evil and criminal instincts can be made to commit crimes under hypnotic suggestion is probably true in a general sense. However, we must not forget that most of us have some latent or undeveloped animal or immoral germ hidden and inactive in our psychical organization. Sometimes the proliferation and recrudescence of this germ is seen in our progeny, or else, as far as we know, kept quiescent by environment, education, and the fear of the ultimate consequences should we transgress the laws laid down by our fellow-men. Now, if the subject is one of these exceptional cases that I have given, we can, by inhibiting this "instinct of self-preservation," and his tendency to "instinctively reason up to the consequences to himself," work upon what is practically virgin soil, with the exception of the latent germ mentioned. By repeated hypnotic and post-hypnotic suggestion I believe these persons can be made to commit any crime. If this is true, then, reversing the order of procedure, we have a basis for an intellectual and moral orthopædia.

While there is some difference of opinion regarding this commission of crime under hypnotic control, I am in accord with the following authorities: Motet, Ladame, Dumontpellier, Guermonprez, De Grasset, Forel, Liègeois, Semal, of Belgium, Tuckey, Moll, Gowers, Bourru, Binet, Kraft-Ebing, Dessoir, Bjornstrom, and numerous others.

An eminent member of Mr. Hudson's profession, Judge Abram H. Dailey, says:* "A person who is thoroughly hypnotized is under the absolute control of the hypnotizer; the subject, for the time being at least, can be made to do almost anything within the power of the man at the command of the hypnotizer."

It is not necessary to more than state the well-known fact that, once you have hypnotized the subject, subsequent work offers few if any difficulties. But the cœnesthesis, on which depends the ego or personality, is the last part of the organization to be affected.

As I shall in a short time give to the profession the result of my investigations regarding the legal status of hypnotism, I will not here trespass on the domains of Mr. Hudson. I wish to say, however, that the sooner the two professions come to some understanding in the matter, the sooner can we stop all this ridiculous and sensational stuff that is daily exploited in the press. We can also put a stop to the silly pleas of hypnotism as a defense, which bid fair to deluge our courts to such an extent as will ultimately mix them up in a bewildering maze of incongruities. We can soon stop all this, for, as Kraft-Ebing says, hypnotism, as a biological phenomenon of Nature, offers symptoms empirically true, clear, and objective, the proof of which is decisive.

CANCER OF THE STOMACH:

ITS PHYSIOLOGICAL TREATMENT.†

By DANIEL E. KEEFE, M. D.,
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In looking through the leading text-books on the practice of medicine one is surprised at the paucity of matter on the treatment of cancer of the stomach. It is usually dismissed with a few sentences. I quote from two of the most recent and leading ones as samples: "Treatment altogether palliative. The indications are to make the patient comfortable by relieving pain and vomiting. The diet may be determined by the experience of each patient. In the majority of cases alcoholic stimulants in moderation are beneficial. When the pain becomes severe morphine may be administered hypodermically. If at any time the stomach becomes overloaded, its contents may be carefully removed by the stomach pump. Aloes for the constipation, sulphite of sodium and oil of cajuput for the flatulence. Bismuth subnitrate during the whole course of the disease, combined with soda, conium, and stramonium, are recommended. If the stomach entirely rejects food, rectal alimentation may be resorted to." (Loomis, *Practical Medicine*, p. 246.)

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* Hypnotism in Medico-legal Jurisprudence. By Judge Abram Dailey, President of the Medico-legal Society. *Medico-legal Jour.*, December, 1893.

† Remarks made before the Hampden District Medical Society, discussing cancer of the stomach.

"Palliative measures are alone indicated. Diet of readily digested substances of all sorts. Many do best on milk alone. Washing out the stomach when there is obstruction at the pylorus is particularly advantageous, and is by far the most satisfactory means of combating the vomiting. The excessive fermentation is also best treated by lavage. When the pain becomes severe, particularly if it disturbs the rest at night, morphine must be given. One eighth of a grain combined with carbonate of sodium (five grains), bismuth (five to ten grains), usually gives prompt relief, and the dose does not always require to be increased. Creosote (one to two minims) and carbolic acid are very useful." (Osler, *Practice of Medicine*, p. 384.) And we find no more thorough discussion of the subject or more minute directions in the larger works, such as Pepper's *System* or Reynolds's *System.*

It may be asked, Are not those given, if carried out intelligently, complete and far-reaching enough? Do they not embrace all that is essential, and what more can be said? Is not the disease necessarily and rapidly fatal? All this may be true so far as the great essentials of medication are concerned, but it is by attention to details, particularly those applying to alimentation, and the thorough understanding of the great principles underlying them, that we are often enabled to achieve success when otherwise our efforts must result in failure.

We have no medicine that will cure or even retard to any extent the progress of the disease; still, there are those who think that cundurango and arsenic do exert such influence. Clinical observations, however, do not support such beliefs. Why medicate at all then? Because by so doing we make our patient more comfortable. For this reason it is well to remember that in medicine we have an important auxiliary. Thus cundurango, morphine, conium, and belladonna control the pain. Bismuth subnitrate, dilute hydrocyanic acid, ice, cocaine, limewater, and alkalies alleviate the vomiting. Antiseptics, such as boric, carbolic, salicylic acids, creosote, and oil of cajuput lessen the eructation of gas and control the fermentation and fœtor, while all these medicines are assisted in their action by washing out the stomach through a soft rubber tube. We must remember the limitations of this medication, however. When we appreciate these facts, and remember that the duration of the disease is from three months and a half to three years and a half, it must be apparent that our only hope is in physiological alimentation. We may hope by this means to compel the minimum more nearly to approximate to the maximum, and perhaps extend the maximum duration to a certain degree. We can, I feel sure, at least make the short time that remains to the poor sufferer more tolerable.

Before entering into a description of our conception of the principles involved in the treatment of cancer of the stomach and its proper alimentation, it seems proper to review briefly the functions of the stomach and bowels, in so far as they relate to digestion. We shall thus be enabled to more intelligently judge of the correctness of the principle to be formulated and to select a dietary most suitable to the demands of the system under its altered and abnormal conditions. It will be remembered that experiments and observations on Alexis St. Martin and others demonstrated that when food entered the stomach it was carried from right to left to the cardiac end, thence along the greater curvature to the pyloric end, thence along the lesser curvature back to the starting point. This peristaltic circulation or churning was continued until all the alimentary matters were reduced to a diffluent condition, the liquid portion passing through the pyloric opening into the duodenum, not all at once, but a little on each circuit, until all had passed through. The stomach concerns itself principally with the digestion of the albuminoids, converting them into peptones. With the aid of the ptyalin of the saliva it hydrates the starch of the carbohydrates, especially of bread, dissolving out the gluten or albuminous part and precipitating all the starch not changed by the ptyalin. It also digests the casein or albuminous part of milk. In the intestine the four pancreatic ferments, aided perhaps to a certain extent by the bile and intestinal juices, digest principally the carbohydrates, such as starches, sugars, and fats, but also albuminoids. Thus we observe that all sorts of nutritive materials are digested in the bowels, though it may be questioned whether the albuminoids are as rapidly, efficiently, and economically digested as in the stomach. In view of these facts we are, I think, justified in concluding that, were it possible for us to introduce liquid foods directly into the duodenum, we could get along without the stomach for a considerable time and with tolerable comfort. It follows from these premises as a logical conclusion that stomachal digestion of pristine power and completeness is not absolutely necessary, provided the foods be in a liquid or semiliquid form. We are now prepared for the statement of the physiological law and its application. It may be stated in these terms: The activity of the circulation in any organ, viscus, or member of the body bears a direct ratio to the functional activity of the said organ, viscus, or member. That the greater the circulation, the greater the metabolism and the greater the nutritive supply. It follows as a natural corollary to this, and it is a fact proved by clinical observation, that the growth of cancer, indeed I may say of all tumors, is rapid in proportion to the strength and rapidity of the circulation and nutrition. This is illustrated by the slowness of such growths in the aged and feeble, whose circulation is weak, whose nutritive powers are almost *nil.* Inactivity means little metabolism, little nutrition, and small circulation; while great activity is synonymous with large blood supply, great metabolism, large supply of nutrition, and rapid growth. The practical deductions to be drawn from these facts in the treatment of cancer are, it seems to me—(*a*) Give the stomach a maximum of rest and a minimum of activity so as to keep its blood supply as small as possible. (*b*) Treat it as nearly as possible as though Nature intended it, like the œsophagus, merely as a conduit for the alimentary matters to the duodenum. To this end let all our foods approximate as nearly as possible the fluid state, so as to permit of their easy and speedy passage through the stomach and so avoid irritating it or setting up and prolonging its peristaltic action. (*c*) They should consist as largely as possible of carbohydrates, materials that the stomach takes little or no part in digesting. (*d*) These rules should be put in practice as soon as the disease is diagnosticated and not wait until the end is near at hand. (*e*) In carrying out these rules alcoholic stimulants are to be avoided until the time arrives when little or no food can be taken, when the end is a question of a few days or weeks. Then all rules may be suspended and taste and comfort only considered. For, notwithstanding that stimulants are recommended by some of the best men in the profession, they cause hyperæmia of the stomach, and hence are unphysiological in this disease.

I may now indicate some of the articles that seem to me most suitable for our dietary, many representing a whole class or family, for it is simply impossible to mention all in a field almost limitless. I only regret that I am compelled to mention so many pharmaceutical preparations, but "the truth must be spoken though the heavens fall." I mention as first in importance malt extracts, such as maltine and Trommer's extract, for the reason that they contain a large amount of carbohydrates and an albuminoid in an easily assimilable form, and also promote the digestion of other carbohydrates; oyster, clam, and chicken broth; beef and mutton soup; fresh boiled fish sparingly, such as oysters, trout, cod, and haddock; fresh meat in limited quantity, such as pulp and scraped beef and mutton, powdered and liquid beef peptonoids, and, when there is much eructation of gas, liquid beef peptonoids with creosote is a most suitable preparation; bovinine and beef tea, either made from the extract or from the beef direct; fats—such as butter, cream, olive (salad) and cod-liver oils; ice cream, soft-boiled eggs or raw eggs whipped with sugar and water, milk and kumyss; steamed custard, stale bread, bread and milk, bread and butter, boiled oatmeal, rice, corn starch, sago, tapioca, and macaroni. This enumeration would be sadly incomplete if I did not mention a class that I consider more important than any yet mentioned—namely, the predigested infant and invalid foods. I may mention as a representative of this class Carnrick's soluble food, containing in addition to the salts, digested and soluble wheat starch and maltose or starch sugar, sugar of milk, and evaporated milk. This class should form an important element, if not the largest one, in our dietary for this class, since they are not only very grateful but also very nutritious. Indeed, they seem more nearly than any other class to be the food exactly suited to this disease. For drinks, tea, chocolate, cocoa, lime juice, Seltzer, milk, and kumyss, and, bearing in mind what I have before said as to stimulants, a little wine may be admissible at dinner or for the promotion of sleep—any dry wine, such as hock, claret, catawba, Rhine, Hungarian, or even sherry.

In conclusion, I am very strong in the belief that the physician who will at an early period in the disease carefully formulate a dietary for his patients on the physiological principles just described will experience greater satisfaction and contribute more to the comfort and the prolongation of the lives of those having gastric cancer than by a like attention to any system of medication only.

ATAXIA

AS A SYMPTOM OF DISEASE IN THE CEREBRO-SPINAL SYSTEM.

By D. B. McCARTIE, M. D.,
NEWARK, N. J.

Ataxia is a symptom of disease or derangement of the nervous system almost as prominent as abolition of function or paralysis. It is a notable feature in many diseases. It should not be always associated with ataxia occurring in the lower extremities and known as "locomotor ataxia," since the rare and hereditary form of ataxia shows that it has much wider applications and must invade a much greater surface of diseased area than is usually ascribed to it when associated with the disease "tabes dorsualis," for besides the inco-ordination of movement of the lower extremities there is present inco-ordination of the eye muscles, or nystagmus, and inco-ordination of the tongue and laryngeal muscles, which causes impairment of speech. We find ataxia also combined with paralysis in an almost distinct class of cases, the difference being that the paralysis and ataxia occur *pari passu* and are known as "ataxic paraplegia."

Ataxia is found most commonly in the disease called locomotor ataxia, but it is a well-marked feature also in ataxic paraplegia and in Friedreich's disease, or the hereditary form. Again, we find it well marked in disseminated sclerosis, where the ataxia occurs on voluntary movements of the muscles of the extremities and the muscles of the eyes, larynx, and tongue. It occurs in general paralysis of the insane, interfering with the gait and proper action of the tongue. It occurs occasionally in neuritis, and has followed injuries to the cord and brain. It is especially prominent in disease of the cerebellum, and occasionally in tumors situated in the cerebro-spinal system. It has been seen as a sequel to diphtheria and alcoholism, also arsenical poisoning. It sometimes occurs in hysterical patients, and lastly is found as a functional derangement of the nervous system (*vide* case at end of article).

Many theories were brought forward to explain the curious muscular irregularity called ataxia; some deal with the physiology of the cord and explain the inco-ordination occurring because of disease in the posterior columns of the cord, whereby the sensory impressions from the muscles to the brain are cut off. This presupposes a co-ordinating center set aside in the cerebellum and acting on the motor impulses by a co-ordinating action. Many other theories exist which throw little light on the subject, and it is therefore unnecessary to repeat them here. But, no matter how it occurs, it is evident that inco-ordination means lack of force and not perversion of normal force. No ingenious theory can throw light on a force supposed to exist in the cerebellum which regulates impulses coming from the brain. It looks more feasible to consider that the impulses are misspent or perverted, and that the muscles act irregularly in response to irregular nerve currents, since their paths of conduction are interfered with.

The co ordinating action of movement is a far more intellectual act than the volitional impulse itself; therefore it would be contrary to all our knowledge of the brain as a higher center to place the intricate and highly intellectual act of co-ordinating movement in a lower center, as the cerebellum.

Such an intellectual act as violin-playing would not be very high in the scale of intelligence if it depended on the correcting action of the cerebellum—that is, according to our knowledge of the seat of intellect in the brain. Our acts are highly intelligent, since they portray the thought which arises in the brain, and consequently are co-ordinated from the first and require no additional feature save proper conduction.

When anæsthesia of the lower limbs is present there is an inability to stand steadily, especially if the eyes are shut. This has been thought to be the cause of inco-ordination, but anæsthesia occurs independently without causing ataxia. Leyden maintains that since guiding sensations contribute to due execution of movement, the ataxia is merely a consequence of interruption in transmission of such sensations along the cord; but Fagge quotes a case in which there was perfect anæsthesia and even loss of "muscular sense," but no inco-ordination. Another case is instanced of multiple tumors on the posterior nerve roots in which ataxia existed, as proving that interruption of the sensory nerve currents from the muscles going to the cerebellum is the cause of ataxia; but in this case it would be very improbable that all sensory currents were cut off. It also happens that ataxia does not generally take place in partial peripheral nerve paralyses nor usually in neuritis. None the less the most maintained theory seems to be the lack of conveyance to the cerebellum or brain of the so-called "muscular sense," whatever that may be, through disease of the sensory tract in the posterior columns of the cord, or disease in the sensory nerves themselves which, through the posterior columns of the cord, are supposed to bear impressions upward to a co-ordinating center in the cerebellum.

Volitional motor impulses pass down through the motor tracts, and, being the primary elements in muscular action, do not seem to necessitate sensory phenomena from the muscle to indicate their action, so that if any irregular action takes place it may be due to the obstruction of these volitional impulses in the diseased tracts of the cord or in peripheral nerves themselves, or possibly in other parts of the nervous system. It is far more probable, therefore, that the obstruction in the cord or nerves interferes with the primary volitional brain impulse coming downward and not the loss of sensory currents from below, which require the complicated mechanism of transmission up to the brain and down again, for how these impressions come down is again a problem, since they do not arrive at the muscle through the motor tracts, for disease of these tracts does not necessarily imply inco-ordination.

The sensory theory implies that all our actions are automatic and consequently involuntary, since they depend on the sensations in the muscular tissues. But if the volitional impulse comes primarily from the brain it would upset the idea of its depending and acting on the muscular sense. The muscle sense calls for certain action, and without it the motor impulses are inco-ordinated; in this case the same argument applies to the muscles of the eye, the tongue, and the larynx, where the connection of the posterior columns of the cord and the cerebellum are not evident. Thus, in insular sclerosis and general paralysis of the insane the ataxia is quite marked, without disease of the posterior columns of the cord, the sensory nerves of the muscular tissue, or the cerebellum.

The order of lesion appears to be:

1. Paralysis, due to complete destruction or obstruction of nerve fibers or centers.
2. Spasm, due to partial scleroses (spastic paraplegia).
3. Ataxia, due to obstruction in some nerve bundles and consequent perversion of the nerve currents as regards time and place.

It is most probable that a muscular action co-ordinates itself primarily from its first origin in the brain or cord, and requires no muscular sense to direct its action except the perfect transmission of its force, irregular transmission giving irregular results; tremor being a fine form of obstruction to transmission, ataxia a rougher form, while spasm may be complete loss of the nerve current to the flexor or extensor sets of muscles.

From these views it may be concluded that the disease called locomotor ataxia has a wider field of lesion than the posterior columns of the cord or the sensory nerves in connection with the muscles, and that we must look higher up in the brain for the cause of the inco-ordination, since it occurs in several diseases where the cord and the nerves are intact. Again, the change often affects the eye muscles and those of the larynx and tongue, which can not be explained on the analogy of these parts to the sensory nerves of the cord.

The ætiology of the disease is plain, syphilis being the cause in eighty per cent. of the cases, though its special tendency to cause a localized degeneration of certain nerve tracts is most illogical and unsatisfactory.

There is no connection between the loss of sensation in the skin and ataxia except that anæsthesia increases existing inco-ordination, nor is it evident that ataxia depends on loss of "muscular sense," since in the case reported by Fagge loss of "muscular sense" occurred, but no ataxia. It is an ingenious method of explaining a difficulty, for physiology points out that the posterior columns of the cord are ascending columns, and consequently transmit impulses upward, and they are found generally diseased in connection with ataxia. It is necessary, then, to form a theory to conform with their functions; hence it is assumed that muscular sensations pass up through the posterior columns and help to co-ordinate in the cerebellum the motor impulses which come down from the brain. This would limit all our actions; every act would then be reflex or automatic and would depend on the "muscular sense."

The same applies to the utterance of thought in speech; the expression of thought would depend on the muscular sense or automatic action of the laryngeal muscles, the eyes would follow a similar action, and, indeed, the entire muscular system. Voluntary action were impossible, for the co ordinating act is the most intellectual feature of any act, but if it depended on the "muscular sense" it would be merely a reflex condition.

The physiology of the cord is not so well understood as to suppose that all impulses are conveyed up the posterior columns. It is a contradiction to say that the cerebellum presides over co-ordination when the conduction of these posterior fibers is upward. There may be downward fibers as well which deal with the proper equalization of nerve force, though our conception of such a co-ordinating force is vague, and, indeed, it is extremely improbable that such a registering and qualifying condition exists outside ordinary muscular action.

The fact ataxia is plain; we infer a co-ordinating force.

It would be more rational to consider that all movements are co-ordinated naturally, except those obstructed in transit. This condition is rather evident in disseminated sclerosis, where the posterior columns and sensory nerves are intact, but where much inco-ordinated action occurs and where evident patches of obstruction exist. It is also manifest where tumors grow in special nerve tracts, in general paralysis of the insane, and spastic paraplegia.

The loss of the knee jerk is brought forward to explain the early interference which disease in the sensory nerves exhibits, but in the case cited in the end of this article the reflexes were much increased, though ataxia was a prominent symptom. The loss of reflex at the knee may be explained as due to loss of a downward motor current, since it often occurs when sensation is perfect.

In cases of locomotor ataxia the muscular tissue does not show loss of sensibility. If ataxia were due to the loss of this "muscular sense" most sufferers would lose the sense of muscular position; but this rarely happens. And again, where the muscular sense is lost co ordination is preserved, as in the case cited above. The few rare cases in which paralysis of motion occurred on one side and sensory paralysis on the other side, with the extraordinary fact that loss of sense of position occurred in the leg in which sensibility was retained and was preserved in the other leg where all ordinary sensation was abolished, scarcely proves the distinct existence of a "muscular sense," for if the tactile sense was lost sense of position would also be lost. What the sense of position can mean, save contact with an external body, it is difficult to understand. But even if there was a distinct muscular sense which directs co-ordination, ataxia would commence at once if it were lost; but in the above case where crossed paralysis occurred, the ataxia only supervened ultimately (*vide* Gowers, footnote), and in Fagge's case it never existed at all, even though the muscular and cutaneous senses were abolished. It would be incredible to think that if cutaneous sensibility were normal the sense of position could be lost, and if ataxia depended on this loss every case of locomotor ataxia would present some loss of the sense of position. In cerebellar disease there is no loss of the sense of position, yet the patient can not co-ordinate. It is not plain, therefore, what the sense of position has to do with ataxic movements. The eye ought to be a good example of how the sense of position affects co-ordination, but in nystagmus the sight is perfect.

All voluntary movements are primary acts, but if they depended on a sensory impression they would necessarily become secondary, which would mean abolition of the will power. The finest co-ordinated movements show a cerebral influence, such as violin-playing; they are acquired with difficulty, and other mental qualities, as memory, taste, audition, and sight, are brought to bear upon the action, showing that it is a primary mental influence which co-ordinates the action and not an automatic mechanism.

Inco-ordination is possible where the posterior columns of the cord are intact, the peripheral nerves are free from disease, and the cerebellum healthy; this occurs in disseminated sclerosis, hysteria, and functional ataxia. Then we must look for the lesion higher up in the motor tracts, where obstructive lesions of this kind are found in general paralysis of the insane and in disseminated sclerosis.

The following case illustrates a functional form of ataxia. A few cases of a like nature are mentioned in Wilks's treatise on diseases of the nervous system, otherwise I can find no reference to this form of ataxia.

John J., aged forty years, laborer, married, two children, healthy. No family history of neurotic disease, none especially relating to Friedreich's disease. No history of syphilis or evidence thereof. The chief clinical history related to sexual excess. The man simply called for treatment in view of weakened sexual power. He stated that he thought an overindulgence in this respect was the cause of his present impotent condition.

Personal History.—He was always strong up to the present time. Had an attack of gonorrhœa several years before. He said he thought his testicles were much smaller of late, especially the left one. On examination both testicles were very small and soft to the touch, but not painful. An ordinary varicosity was situated on the left side and was a thing of years. The present trouble had existed only about a month. It had begun by a loss of the sexual power and ended in failure in this respect. He had no other symptom. On more careful inquiry he said he felt his feet giving way on walking and his gait became uncertain. The man is of medium height, with muscles strongly developed. The grasp of both hands is powerful. There is no tremor, but inco-ordination is well marked when the patient begins to walk. He walks also very much on his heels, but has very little difficulty in turning. With the eyes closed and the feet together he sways very much. There is no loss of sensation. He has no history of pain, no stomach or bladder trouble, no headache or vomiting, no girdle pain or difficulty in micturition. He is impotent. The knee jerk is much increased. The pupil acts naturally to light and distance. Speech is perfect. There is no loss of power in the muscles. After six weeks of tonic treatment and a light plaster-of-Paris jacket to support the back the patient had lost all signs of ataxia and could walk without the least difficulty. With the eyes closed he could stand steadily or, as he expressed it himself, he could walk in the dark.

The impotence remained, but all the other symptoms gradually improved; the reflexes were less exaggerated and the gait became quite steady. The light plaster jacket was in no way disagreeable to the patient; on the contrary, it gave him a sense of support and probably aided much toward curing him. In ataxia due to degeneration of nerve tissue it might also be useful.

HUNTINGTON'S CHOREA.*

By ARTHUR CONKLIN BRUSH, M. D.,
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NEUROLOGIST TO THE BROOKLYN CENTRAL DISPENSARY.

The following cases of this interesting and somewhat rare condition have come under my observation in the Kings County Hospital:

Case I.—L. N., A colored woman, aged fifty-two years, single, native of this State. Her sister has the same disease, but there is no other family or personal history of importance obtainable.

Three years before admission she began to have involuntary contractions of the facial muscles. These gradually extended, involving the arms, then the body, and, lastly, the lower limbs. These spasms cease during sleep, and occasionally there are periods during the day in which they are absent for from a few minutes to an hour or more. They are increased by mental excitement or attention.

The head, when not involved by the spasm, is habitually turned to the right, but the patient is able to move it freely, and as a rule she keeps her eyes closed; but sometimes she sits with one or both open.

The muscular contractions are clonic in character and involve groups of muscles habitually associated in the performance of purposeful movements. These spasms keep the face, head, body, and limbs in constant grotesque motion. They can be controlled for a time by voluntary effort and cease during purposeful movements.

Mentally there is marked loss of memory, and her answers are foolish and often at random.

She remained in about the same condition for a year, when she had a number of epileptiform convulsions, and died in the coma following one. Unfortunately, the assistant pathologist did not appreciate the importance of this case, and made but a hasty autopsy, reporting as having found nothing beyond a basilar pachymeningitis.

Case II.—M. B., An English widow, aged forty-six years. This patient at first denied any family history of disease, but afterward admitted that her father had had a similar condition late in life.

The present trouble commenced about three years before admission with involuntary contractions of the facial muscles, and these gradually became more extensive and severe, involving in order the arms, trunk, and legs.

These spasms are partially controlled by voluntary effort, and slight movements continue during sleep.

The spasms are clonic in character, involve groups of physiologically associated muscles, and are most marked in the face, neck, and upper extremities, which keep her constantly grimacing and posturing.

With these spasms there are also associated fibrillary contractions, partial and isolated spasms of single muscles, and there is some inco-ordination of both arms and legs. This case passed from observation unchanged at the end of three months.

The diagnosis of this condition is based upon the following points which distinguish this disease from the other forms of chorea, and most of which were well marked in these cases:

The disease is a chronic and progressive one, without tendency to improvement, but usually does not shorten life.

It is a disease of later life, usually beginning between thirty and forty.

It is more common in women than in men.

It is usually associated with mental failure or melancholia, with or without delusions.

If a generation escapes, it does not reappear in that branch of the family.

It occurs without known cause.

It begins in the face and extends downward, growing more severe.

Authorities differ as to the character of the muscular contractions; but this difference is, as we shall see, more apparent than real, as both varieties described are the result of the same lesion, the difference being due to the amount of damage done to the cortical motor cells. These movements may be clonic spasms of physiologically associated muscles, or there may be irregular clonic spasms of single muscles, or partial and fibrillary contractions may occur.

The movements are partially or completely controlled by voluntary movements and are diminished or absent during sleep. The chorea never remains localized, and there is more or less inco-ordination. The pathological findings in all the cases in which such examinations have been made point to the cerebral cortex as the seat of the lesion.

The changes found, such as an accumulation of leucocytes about the blood-vessels, degeneration of the nerve cells, increase in the neuroglia tissue, meningitis, and atheroma of the arteries, class this disease with those chronic degenerative processes of the nerve cells whose first manifestation is an abnormal activity on their part.

It is unfortunate that the chance of making a careful microscopical examination in the first case was lost; but it is not probable that even had this been done we should have learned anything more as to the pathology of this disease than we know now.

The cortical origin of the symptoms is shown by the pathological findings, by the associated mental changes, by their beginning in the muscles habitually most under the cerebral control, as the face and arms, and by their absence during sleep and arrest by voluntary movement, both of these latter being exaggerated when of spinal origin. As to the nature of the lesion, Huntington's chorea should be classed with those inherited degenerative neuroses due to some vice of nutrition which do not show themselves until the normal deterioration of the nervous system due to advanced age begins, and involving primarily the superficial layers of the cortex with consequent loss of control over the deeper layers and lower centers, and sometimes followed by secondary changes in these structures. To explain the symptoms, then, it is necessary to briefly review a few points in the physiology and anatomical relationships of the cerebral nerve cells and the method by which muscular movements are produced in the brain.

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* Read before the Brooklyn Society for Neurology, June 28, 1894.

The cells of the cerebral cortex have dependent upon their situation the power of receiving the impressions sent to them from other parts, and by the repetition of certain impressions the various nerve cells affected by it become associated into groups, as it is said, by the formation of lines of diminished resistance between them.

Such cell groups may then become further associated into larger ones, and thus habitual trains of thought and the like are formed.

After such an association has once been formed, the excitation of any part will throw the whole into activity. Impressions when once produced upon a cortical nerve cell are probably permanent, but it may be years before volition or association recall it to conscious attention.

The oftener such an association is thrown into a state of activity, the easier and more automatic does its action become.

Such cell groups may not only be thus acquired, but they may also be inherited, as shown by the mental peculiarities of certain families and by the instinctive movements in children and animals.

When such an association is so well marked that we can localize it, it constitutes a memory center.

The motor centers in both hemispheres for the simpler movements habitually act together, but those for the more highly specialized movements tend to become localized in one of the hemispheres.

Throughout the nervous system we find that certain groups of cells possess the power of controlling the actions of others, and it is to this power that we are able to stimulate or inhibit the discharges of these various centers in response to the demands of volition. Those centers which represent the highest controlling power of the nervous system are situated in the præfrontal lobes.

Everywhere throughout the cerebral cortex we find what is known as its second or sensory layer, but which is in reality its superficial nervous layer, uniformly composed of small angular cells.

It is these cells which are supposed to possess the power of inhibiting and controlling the discharges of the cells of the various centers which lie beneath them.

The sensori-motor apparatus, then, consists of the sensory layer, the cortical motor centers which lie beneath it, and the lower or spinal centers.

The motor cells of the cortical centers would discharge at regular intervals were it not for the inhibitory power of the sensory layer.

These cells in turn possess a dual power over the cells of the lower motor centers, that of stimulating them to discharge in response to volition and of, at other times, partially inhibiting the rhythmical motor discharges which these cells send out, and by which the muscular tone of the body is preserved.

Purposeful movements and not individual muscles are represented in the cortical centers, due to the inherited or acquired organization of their cells into groups, and also possibly to the anatomical arrangement by which such cortical cells control a large number of spinal ones.

The cells of the lower motor centers are, as I have said, under the control of the cortex, but peripheral impulses, if very acute, may cause so much irritation as to overcome the inhibitory influence.

In like manner muscular movements which at first required active attention may, when once originated either by volition or in response to external stimulus, from a similar organization of the cells in the lower center, be continuous without the aid of further volition. Such movements may not only be acquired but also inherited, constituting the instinctive and emotional movements.

It is evident, therefore, from these facts that any conditions such as have been found in this disease, which act principally upon the superficial layers of the cortex, according to the amount of damage done to the nerve cells, will first weaken or destroy the inhibitory powers of the sensory layer, leaving the motor cells free to discharge themselves whenever they have acquired a sufficient amount of force.

When the damage is not yet marked, a sufficient number of healthy sensory cells may remain to temporarily control these motor discharges, as when active attention is directed toward them, as in purposeful movement.

If the damage to the motor layers has not been sufficient to break up the association of cells into groups, the muscular contractions will then involve groups of associated muscles, and most markedly those most habitually under the control of the mind, as those of the face and hand.

If the degenerative changes extend to the motor cells, this associated action is by unequal damage destroyed, and we then have the irregular contractions and the fibrillary tremors from loss of control over the spinal centers, and from this latter condition also the increased reflexes and inco-ordination. The absence or diminution in the contractions during sleep is due to the abeyance of all cortical action in that condition, the movements which are found being, as I have said, of spinal origin.

The mental changes which always occur sooner or later in this disease are, of course, due to similar changes in the volitional centers and of the mechanism by which they are brought into relationship with the other centers.

339 Lafayette Avenue.

A Newly Discovered Foramen.—Dr. J. W. Hartigan, professor of human and comparative anatomy in the West Virginia University, informs us of his discovery of a foramen in the base of the transverse process of a lumbar vertebra in the human subject. This, he says, has never been noticed by any anatomist, so far as he is informed. Henle's case was one of union, by a bridge of bone, of the mamillary and accessory processes, an entirely different thing.

The New York Medico-surgical Society was organized on March 4th. The officers are as follows: President, Dr. Edward J. Bermingham; vice-presidents, Dr. A. H. Goelet and Dr. W. W. Van Valzah; secretary, Dr. Samuel E. Milliken; treasurer, Dr. Frederick A. Lyons.

Condy's Fluid.—A correspondent wishes to know what this is. It is said to be a two-per-cent. solution of potassium permanganate.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

Published by
D. Appleton & Co.

Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, MARCH 9, 1895.

THE TREATMENT OF INFLUENZA.

In the *Presse médicale* for February 6th there is an interesting article on the clinical forms of this disease and their treatment, by Dr. A. F. Plicque. The whole article will well repay the reader's perusal, but our space will not admit of our dealing with more than the therapeutical part of it. In the common forms of the disease, without special complications, hygiene, with rest in bed, says M. Plicque, should be the foundation of all treatment. Hot drinks also may be employed. Milk is one of the best, and has the advantage of being an active diuretic. Coffee is also useful in prostration and headache. Antipyrine, in daily amounts of from thirty to sixty grains, gives good results in headache, although it sometimes increases the cough and the bronchial irritation. Tincture of aconite root, from ten to thirty drops a day in divided doses, may be given when there are fever, general malaise, and laryngo-tracheo-bronchial catarrh, but it occasionally increases the nervous agitation. Quinine still remains, perhaps, says the author, the agent that more thoroughly reaches the disease, although it sometimes aggravates the feeling of weight in the head; this, however, is less marked with quinine hydrobromide and with the valerianate than with the sulphate. A gentle purgative is always useful during the first two or three days in cases of gastric derangement. If the thoracic symptoms are intense, manna or castor oil is preferable as a purgative.

In the common forms of the disease the most important advice to give the patient is perhaps that which deals with the antiseptic treatment of the nose, the mouth, and the pharynx. Gargling with a solution of boric acid, or with a one-per-cent. solution of chloral, intranasal applications of vaseline and boric acid, and great care in cleansing the mouth are pretty sure to prevent certain complications, such as angina, abscesses, otitis, perhaps even broncho-pneumonia, and will certainly be of great service.

The thoracic symptoms of grippe are extremely variable, and the most painful symptom, which was particularly observed during the last epidemic, is a convulsive cough which often gives rise to vomiting. The following prescription, which was recommended by Monin in cases of whooping-cough, has given rather good results: Tincture of belladonna, tincture of aconite, and tincture of drosera, each, 30 grains; tincture of myrrh, 150 grains. From twenty to thirty drops a day are to be taken in divided doses.

The congestion of the underlying structures often resembles that of typhoid fever, and, as in typhoid fever, it is combated by the lateral recumbent posture and the sitting posture. It is often indispensable to make the patient lie down for several hours a day on a couch. Daily dry cupping or, if necessary, wet cupping, in robust persons, should be practiced. Blisters are usually more harmful than useful. Tonics, coffee, cognac, and Todd's potion should be employed.

In cases of respiratory catarrh with abundant expectoration, an emetic is often useful for children and adults. Preparations of kermes and antimony may be carefully used. Forty-five grains of ammonium hydrochloride a day, given in six doses, is preferable to the former. In cases of nervous symptoms of an ataxic type, with agitation and delirium, potassium bromide is the best calmative: it has no harmful, depressing influence if it is administered in small doses. From thirty to sixty grains a day may be given. Chloral is more efficacious in insomnia, but it sometimes increases the cough, which, however, is not so marked if a syrup of chloral containing a bromide is used. In addition to these medicines, cool compresses on the forehead and cooling lotions are indicated, and in obstinate forms heroic measures, such as a cold or a hot bath.

Adynamia is, in the nervous form, more frequent than ataxia. Here hygienic means, such as pure air, stimulating frictions over the entire body, inhalations of oxygen, coffee, champagne, and alcohol should be employed. Adynamia is sometimes so marked that Le Gendre, says M. Plicque, advises strychnine. Kola is also very efficacious in the nervous depression that manifests itself in certain forms of the disease. It may be given as a wine, as a tincture, in powders, or granulated. The latter form seems to contain the largest quantity of the active principles. If the tincture is used, it may be associated with equal parts of tincture of coca.

In the cardiac form, aside from external means, subcutaneous injections of caffeine and of ether may be resorted to. Injections of a hundred and fifty grains of sterilized olive oil and thirty grains of camphor are also productive of good results, given from once to three times a day. To the ordinary remedies for the adynamic symptoms tincture of digitalis may be added, and from twenty to thirty drops a day may be given in divided doses.

The gastro-intestinal form should be treated in the beginning with emetics in young persons and with saline purgatives in old persons. Frequent washing of the mouth with an alkaline water will diminish the sensation of puffiness and anorexia. For profuse diarrhœa intestinal antiseptics, such as salol, bismuth salicylate, and naphthol, should be employed rather than opium, the action of which is always doubtful in infectious diseases.

In convalescence, often long and painful, hygienic treatment is especially indicated, and arsenic, cinchona, coca, kola, and sometimes iron are particularly indicated. In cases of neurasthenia and of persistent weakness, it should be ascertained if the phosphaturic albuminuria described by M. Albert Robin is present.

MINOR PARAGRAPHS.

THE ARCHIVES OF PÆDIATRICS.

We learn that with the May number of this excellent journal the editorial control passes into the hands of Dr. Floyd M. Crandall, who for several years past has done good work as a member of our own staff. Our knowledge of this good work makes us confident that Dr. Crandall will conduct the *Archives* carefully and successfully.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 5, 1895:

DISEASES.	Week ending Feb. 26.		Week ending Mar. 5.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	9	5	3	0
Scarlet fever	108	15	121	25
Cerebro-spinal meningitis	3	2	1	0
Measles	84	12	150	10
Diphtheria	218	37	197	37
Small-pox	1	0	0	0
Tuberculosis	98	75	88	128

Society Meetings for the Coming Week:

Monday, *March 11th:* New York Academy of Sciences (Section in Chemistry and Technology); New York Medico-historical Society (private); New York Ophthalmological Society (private); New York Academy of Medicine (Section in General Surgery); Lenox Medical and Surgical Society, New York (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Maine Academy of Medicine (Portland); Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private).

Tuesday, *March 12th:* New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Society of the Counties of Rensselaer and Ulster (quarterly), N. Y.; Newark, N. J., Medical Association (private); Trenton, N. J., Medical Association; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Northwestern Medical Society of Philadelphia; Practitioners' Club, Richmond, Ky.

Wednesday, *March 13th:* American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); New York Pathological Society; New York Surgical Society; Medical Societies of the Counties of Albany and Montgomery (quarterly), N. Y.; Philadelphia County Medical Society; Pittsfield, Mass., Medical Association (private); Worcester, Mass., Disrict Medical Society (Worcester).

Thursday, *March 14th:* Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Societies of the Counties of Cayuga and Cortlandt (quarterly), N. Y.; Pathological Society of Philadelphia; South Boston, Mass., Medical Club (private).

Friday, *March 15th:* New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *March 16th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Births, Marriages, and Deaths.

Born.

Ferguson.—In New York, on Thursday, February 28th, to Dr. and Mrs. Farquhar Ferguson, a son.

Died.

Breintnall.—In Newark, N. J., on Monday, March 4th, Dr. John H. H. Breintnall, aged sixty years.

Hoadley.—At West Pond Beach, Fla., on Monday, February 25th, Dr. Frederick H. Hoadley, aged forty-five years.

Payne.—In Lexington, N. C., on Monday, February 25th, Dr. R. L. Payne, aged sixty-five years.

Vaughan.—In New York, on Monday, March 4th, Dr. Bernard E. Vaughan.

Letters to the Editor.

MALTOSE *VERSUS* GLUCOSE.

Springfield, Mass., *December 28, 1894.*

To the Editor of the New York Medical Journal:

Sir: It is with much pain and disappointment that I read that letter of Dr. R. G. Eccles's in your issue of the 22d inst., purporting to be a reply to mine of the 8th. In my last letter I accused him of making one or two errors and an overstatement in his paper Maltose *vs.* Glucose, but now I charge him with from eight to twelve errors in this letter. This is what I call *reductio ad absurdum.* I regret that he has shown a spirit of unfairness from the very beginning. He charges me with being liberal to myself in my interpretation of the words, when his statements are so bald and positive that they need no interpretation. Moreover, I did not adopt his tactics and assume that he said eight or nine different things that he never said at all, never making a quotation or intimating in any way on what the assumptions were based; whereas I reproduced his own words, so that each reader might judge for himself if I was justified in my statements. I only attacked the article at this one point, though I am free to say that that was not the only weak spot it contained. But then, I had no desire to be hypercritical. My criticism was made in good faith and should have received fair treatment at his hands. In this last letter he tells us that he "certainly never intended to say the things he charges me with." Yes. But am I responsible if he said the things he never intended to say? That he did say them I will presently show by producing in parallel columns what he said in his paper and what he said in his letter. And I dare him to question the correctness of the quotations. If he did not mean what he said in the paper, as he says now, *ergo* the paper is valueless, and discussion is profitless and a waste of time, for how shall we know that he means what he now says? Why, then, write a letter of more than six hundred words, only about thirty-five of which have any necessary or logical connection with what I did say, while about five hundred are devoted to answering objections he assumes that I made, but which I neither made nor thought. Any one can dash off a flippant letter if he gives free rein to his imagination and let it, like a ship at sea, without rudder, chart, or compass, drift wheresoever it will, paying attention to no rules but those of the romancer. This is not the kind, however, which will enhance a man's reputation for scientific accuracy. Of course, such letters read more smoothly and effectively and are better specimens of composition than ones broken up by frequent quotations, and then their authors need not be so scrupulous about the correctness of their statements. If the doctor said what he did not mean, or if he inadequately described the meaning, there was an honorable way out of his dilemma—namely, to call it an error or an oversight, and acknowledge his obligation to Dr. Keefe for giving him an opportunity of putting himself correctly on record. The dear man could afford to do this much better than to descend to the arts of the quibbler; it would enhance his reputation as an investigator, a man like the late Professor Flint, large enough to acknowledge an error. He, however, preferred to follow the old maxim, common among the members of the legal fraternity, "When you have no case, abuse the plaintiff's attorney."

Be it remembered that I purposely refrained from expressing an opinion on a *single* point relating to digestion, only that *the gastric juice can digest the gluten of bread*, even though not previously acted upon by ptyalin or diastase, and that *there is no such thing as a distinct layer of starch covering the gluten of bread and separating it from the gastric juice.* I did not even say that disease would not follow the failure of the stomach to digest gluten. I only said that disease need not necessarily follow, and I told why by quoting Dr. Eccles. Any one can assure himself of this by referring to my letter. Yet, notwithstanding all this, he raises seven or eight points relating to digestion, deliberately chooses one side for himself and puts me on the other, and proceeds to demolish my arguments and condemn and execute me offhand. All this is very pleasant, no doubt, but a little one-sided, and hardly the love of truth and fairness to be expected of an investigator in so exact a science as chemistry. Let us now see how the doctor's statements made in his paper compare with those made in his letter, and for the better comparison we will arrange them in parallel columns.

What Dr. Eccles said in his paper:	What he said in his letter:
"The ptyalin does not get mixed with the food, the starch is not digested from around the gluten, the pepsin can not do its work, and disease is the consequence." "As an artificial aid to digestion pepsin fails because it can not get at the gluten of the bread, because it is buried in starch." Again, speaking of the stomach, he says: "All gluten reaches it enveloped in an insoluble coating, like the sugar or gelatin on the outside of a pill." This last is one I kept in reserve to contradict the denial which I expected, and which he has made in his letter.	"It may be that I failed to fully elucidate my meaning at the point cited. Certainly I never meant to say the thing he charges me with." "So a slip of judgment on my part has put me in an unfavorable light in the eyes of Dr. Keefe.' "Surely the doctor can not think I did not know that gastric juice could digest gluten." "What young student of physiological chemistry does not know that there is no such thing as a distinct layer of starch covering the gluten of bread?" "I do not think that digestion could not be accomplished without ptyalin. I think it could."

Now, I should like to ask Dr. Eccles whether the statements made in his paper or those that appeared later in his letter are true; certainly both can not be. He can take whichever horn of the dilemma he likes. Verily, consistency, thou art a jewel. The doctor spoke of the last straw breaking the camel's back; if these parallel columns do not break the back of his reputation for accuracy of statement, then they will most certainly dislocate it. I will now briefly review a few more of his statements which I feel ought not to be allowed to go unchallenged. He thinks it impossible for authors to go into minute details of all their ideas. It is not only possible, but it is their boundcn duty, especially those writing upon technical matters, to go into details, even to the extent of verbosity and tediousness, if necessary to have their ideas so clearly understood that there can be no question about them. The fact that nine authors out of ten do make themselves understood, shows that they do go into such details. He asks: "Can the doctor not see that even his meat, eggs, casein, etc., are buried in starch in the sense of my paper?" No, he can not see any such thing, for he never studied any rule in mathematics which said that the lesser was equal to or more than the greater, and among ordinary working and business people the consumption of the articles mentioned is about as great as that of bread, or even greater, so they could not very well be buried in starch. Nor can he see that insoluble and indigestible substances *necessarily* hinder the digestion of the soluble ones. This would undoubtedly obtain in a test-tube or glass vessel, where no movement of any kind was had, but in the stomach, where the relative position of solids and fluids is constantly changing, and where they are rubbed the one against and into the interstices of the other, it is a very different matter. Let any gentleman take any glass tumbler; put a teaspoonful, more or less, of sugar or salt into it. Let him now fill it half-full of pebbles, sand, or earth and then fill it with water and shake it, when he will find that, although the sand or pebbles are insoluble, they form no hindrance to the solubility of the sugar or salt. Although solution is not exactly synonymous with digestion, they are both practically hydrations. This is also illustrated by the fowl, which are found, when killed, with a stomach filled with pebbles, pieces of glass, etc.—in fact, the assortment is only limited by their ability to swallow. Still, it is popularly believed that they have the greatest capacity for digestion of anything in animate creation. Indeed, they are currently believed to be able to digest even shingle nails. I am quite sure that dyspepsia is not set down as a disease of the fowl tribe. Again, he says: "Will it be necessary to point out the fact to him that this difficulty, slight at first, becomes worse and worse the more the pepsin acts?" I would reply that it is unnecessary to point out the fact, for in my opinion there is no such fact. For, although, if the digestion were taking place, as I said before, in a vessel, without agitation, without churning or peristalsis, and without any provision for the removal of the products of digestion as it went along, then there would be some basis for the statement. When we remember that in the stomach not only are the alimentary matters changing places all the time, but the peptones are removed by absorption or by passing into the duodenum, in greater or less quantities as formed, but new gastric juice is constantly taking the place of that saturated. "Can Dr. Keefe not see the advantage of alternating modes of digestion, such as Nature has given us, or does he think all digesting to be done in a single place?" I never expressed an opinion on this subject, one way or another. I only expressed *an opinion on the digestion of gluten*. I did this, first, to avoid being hypercritical, second, for the sake of brevity, and, third, because, not being an expert on this subject, being only an ordinary general practitioner, I did not think my views of any great consequence. I will say now, however, that I do see the advantages of Nature's methods of digestion. The doctor continues "with the starch digested," etc. Yes, for, although I have not said *pro* or *con* in my previous letter, I will say by way of giving Dr. Eccles a grain of comfort, I think masticating the food and thoroughly incorporating the saliva with it is a good thing to do. "Anything that hinders normal digestion, if for only ten minutes, must contribute to ten minutes' abnormal fermentation, and if it does not lead to disease, perhaps the doctor will tell us why." In the first place, let me remind my good friend that I never said it would not. I simply said "disease need not *necessarily* follow." Let me also call attention to his statement in this connection. He said: "The gluten is not digested, and disease is the consequence." No, disease need not follow from delayed digestion of gluten—first, because gluten does not enter into fermentation, having neither starch nor sugar to support such a process; second, because its daily quantity, say, roughly speaking, twenty to fifty grammes, is by its softness, lack of bulk, and other unirritating qualities, not likely to irritate the stomach, much less to inflame it; but, lastly and principally, because the trypsin will digest it in the bowel. Regarding starch, although its digestion did not enter into the criticism I made, and has no place in it, I will say that the best authorities allow that in normal digestion starch is never completely digested in the stomach, no matter how much ptyalin, diastase, etc., we use. Hence the failure to digest the gluten would have no special effect on the starch. It is certainly well to turn it over to the pancreatic ferments when the action of the pepsin fails in consequence of its presence in the stomach. Who has said aught to the contrary? It is my opinion, however, that it does not fail from this cause alone. It seems to hurt Dr. Eccles's feelings that I should have the temerity to quote Dalton's *Physiology;* he prefers Foster or Gamgee. Very good, there are medical colleges in this country, and good ones, too, that have this book down in their catalogue of 1894 as the preferred one in this branch. All a matter of taste, and, so long as he could not dispute the correctness of its dictum, it could make but very little matter. Moreover, I will say, just to mollify him, that I have since looked through Foster, Flint, Kirkes, and Yeo (Gamgee not being obtainable here), and find that, while two of them go more into details, they all agree on the question in dispute and on all the main facts of stomach digestion. Dr. Keefe does not believe that one or two engines will pull a train better than or even as well as three, and would like the word or sentence pointed out on which that statement is founded. In closing, the doctor makes a feeble attempt at imitating me, but he is obliged to resort to the unfairness that is characteristic of his whole letter, for he seeks to convey the impression that I called pancreatic juice pancreatin, whereas that word is not used in my letter at all, and, furthermore, the sentence has no relation to the matter in hand, being entirely meaningless. His wish that I be first correct and then consistent, is, I am happy to be able to assure him, a *fait accompli*, and I challenge him to point out an error or an inconsistency. In conclusion, I urge that he read my last letter anew.

Daniel E. Keefe, M. D.

Proceedings of Societies.

PHILADELPHIA ACADEMY OF SURGERY.

Meeting of January 7, 1895.

The President, Dr. William Hunt, in the Chair.

The Indications and Nature of Treatment in Severe Abdominal Injuries and Intra-abdominal Hæmorrhages Unaccompanied by External Evidence of Violence.—Dr. John B. Deaver read a paper on this subject, which was, he said, one that must appeal to every practical surgeon.

Every surgeon had undoubtedly at some time in his experience, either in private or hospital practice, met with cases coming under the class covered by the title of this paper. These were cases in which the history and general condition of the patient gave the impression that there was a serious lesion within the abdomen, and yet, upon examination, we found total absence or only slight evidences of injury. The tendency, he feared with many, was to treat these patients tentatively, only to be awakened at the autopsy to the fact that a rupture or a tear had existed in the abdominal cavity, which, by early radical operation, could have been relieved.

The mortality in these cases was appalling; references to the literature of the subject would amply bear out this statement, which was readily accounted for by the nature of the injuries. Where the lesion was of the liver or the spleen, if the patient did not die of shock or hæmorrhage, a violent peritonitis supervened to which he shortly succumbed. If the liver, the spleen, or the kidneys were involved, death from hæmorrhage might ensue in a very short time. Should the stomach, the intestine, or the bladder be ruptured and its contents poured into the peritoneal cavity, death from peritonitis was the result. In rupture of the mesentery the danger was from hæmorrhage, yet, when the opening in the mesentery was small, a clot might form sufficiently large to control the bleeding. Should death occur under these circumstances it would be the result of peritonitis caused by the free blood in the peritoneal cavity. Dr. Deaver reported a case of this character where recovery had followed immediate operation. In ruptured extra-uterine gestation sacs death was due either to hæmorrhage or to peritonitis.

The usual history of these cases, with the exception of extra-uterine pregnancy, was that the patient had received a direct injury to the abdomen, which was found to be unaccompanied by external evidence. These injuries might result from railroad accidents, from being caught between shifting cars, or from blows upon the abdomen received in various ways.

This class of injuries was quite common in military surgery, more so in the past when spherical balls had been used and only a low velocity attained. A majority had been supposed to be caused by the violence of the wind displaced by the passing ball, but we now knew that they had been due to the impact of the balls almost entirely spent.

Two cases which illustrated this had occurred at the siege of Sebastopol. In neither had the clothing or the abdominal walls shown any signs of injury, but in both the liver and spleen had been comminuted to a pulp, and the intestines extensively lacerated (Mr. Hulke, *Lancet*, December 31, 1892).

As yet we had no reports from surgeons of the armies engaged in the present strife between Japan and China, but it would be of great interest to read the records of such cases. We could expect, he thought, a very full and detailed account from the Japanese surgeons. We had all applauded the work of some brilliant individuals of the Japanese profession, and, in fact, we must assign to Japan in medicine the same standing that she had taken in other walks of civilized life, and which she had demonstrated she could hold.

The most prominent symptom was pain, which was accompanied by shock, the degree of which was dependent upon the extent of the injury and the temperament of the individual.

Dr. Deaver thought that temperament and nationality had a strong bearing in the production of shock. Persons of a highly nervous temperament suffered more from shock than phlegmatic individuals did. For example, Americans were far more apt to suffer a severe degree of shock following injuries or operations than the Germans were.

The pain was peculiar and difficult to describe, but was readily recognized by one who had seen many of these cases and by the patient himself. It was not that of ordinary intra-abdominal affections, but was described by the patient as if something had given way or ruptured, and was usually accompanied by a consciousness of impending death, also with tenderness, which would be more or less localized, unless the ensuing peritonitis was general. In the early stages of the injury, when shock was most profound, it might not be so pronounced, and if large doses of opium were administered it might be masked throughout the course of the trouble. When vomiting was present it was usually associated with pain. Rarely did the vomited matter contain blood. There was often seen a characteristic rigidity of the abdominal walls, which was due to intra-abdominal irritation. He had seen this so marked as to recall to mind the checker-board appearance of the normal abdominal walls as represented in the pictures of the early artists. In the cases he had observed, consciousness had invariably been retained for varying periods of time. Restlessness was not usual in the early stages except in severe hæmorrhage, but later on, when peritonitis developed, it was not an uncommon symptom.

The pulse and temperature varied according to the degree of shock. The former was weak and varied from 100 to 160, and the temperature was subnormal. If reaction took place the pulse became stronger and less frequent, and the temperature reached the normal line. After reaction peritonitis was invariably the rule, and was accompanied by an accelerated and high-tension pulse. The temperature under these circumstances was unreliable, as it did not correspond to the degree of inflammation or septic infection. A high temperature with a slow pulse was less significant than a rapid pulse with a low temperature. In cases of septic peritonitis where an autopsy had subsequently revealed a belly cavity full of foul pus, he had seen the temperature run a normal course throughout the disease.

The part that the sympathetic system of nerves, which had its largest distribution in the abdominal cavity, might play in injury to the abdomen was important in considering the diagnosis between simple contusion and contusion accompanied by visceral lesion. In the former the absence of the severe and characteristic pain, of constant and persistent vomiting, of the anxious expression and presentiment of impending death, and of any evidence of loss of blood, associated with the occasional presence of suddenly developed meteorism, would usually be sufficient to establish the diagnosis. This condition of meteorism was due to paralysis of the muscular coat of the bowel consequent upon the concussion of the plexuses. There were cases, however, where it was very difficult to say definitely whether there was a visceral complication or not. Under these circumstances one could only wait for a comparatively few hours, when, if improvement was not apparent, the operative course was to be pursued. When the solid viscera were the seat of injury hæmorrhage would be the main source of anxiety. The pain and the exsanguination gave the clew. If the patient should react, which was unusual, unless the kidney was the injured organ, we should find, in addition, dullness on percussion in the flank. Rectal or vaginal examination might afford aid in determining the presence of a collection of blood in the pelvis. The solid organs suffered most from external violence, on account of their fixity, their density, and their close proximity to the bony structures. The liver was the most often injured, then the uterus, the spleen, and the kidney, in the order named. The stomach was least often injured, there being very few such cases on record. Dr. J. W. Goff, in the *Medical and Surgical Reporter*, 1892, had reported a case of ruptured stomach following a horse kick of the abdomen, verified by an autopsy. The shock had been profound, and there had been vomiting with absence of blood. The author stated that he believed an immediate operation would have saved the patient's life.

In the *Glasgow Medical Journal* for 1894, vol. xli, Andrews had reported a case of rupture of the stomach without external evidence of violence, in which all the symptoms of a serious visceral lesion had been present with the exception of vomiting. The rupture had been upon the anterior wall; it had been about an inch long, and had involved all the layers. The speaker cited this case as one of special interest on account of the location of the tear and the absence of vomiting.

The liver was the organ most often affected, because of its position beneath the ribs and against the spine, and because it was held firmly in place by strong ligaments and blood-vessels. It was most commonly ruptured on its upper surface, generally in the right lobe, and in a majority of such cases the injury proved fatal. Dr. H. P. Loomis, in the *Medical Record*, had reported a case where the patient had been struck by a pole protruding from the back of a wagon, which, when the wagon turned the corner, had struck him on the right side, leaving no external evidence of violence. There had been a three-inch tear in the right lobe of the liver and a pint of blood in the abdominal cavity. The patient had died in the street from hæmorrhage before medical aid could reach him.

Mr. Battle, in the *Lancet*, 1894, had reported a case of rupture of the bile duct in a boy six years of age who had been run over by a hansom cab. There had been but slight shock without much pain or tenderness. Vomiting had begun early and had persisted. On the fifth day slight jaundice had developed. He had been operated upon on the eighth day, and the abdominal cavity had been found filled with bile. He had died on the morning of the ninth day.

At the autopsy the liver and the gall-bladder had been found intact, but about half an inch beyond the junction of the cystic and hepatic ducts the common duct had been found torn completely through. No other injury had been found.

The cases reported by Dr. Deaver were as follows: J. E., aged forty-six years, had been admitted into the German Hospital on November 17, 1893, suffering from injuries received by being struck by a locomotive. He had had a compound fracture of the lower jaw, lacerated scalp wound, and a fracture of four ribs on the left side, with no other signs of injury. He had died six hours later. The post-mortem examination had revealed a hæmatothorax of the left side. The peritonæum had not been perforated or otherwise injured, but the peritoneal cavity had been filled with blood. The spleen had been completely comminuted, and the left kidney had been forced from its bed and was floating in the retroperitoneal space. There had been an extensive hæmorrhage between the layers of the mesentery, and a hæmorrhagic extravasation of the posterior wall of the stomach.

H. M. C., colored, aged sixteen years, had been admitted into the German Hospital on the evening of December 3, 1894, with the following history: While playing about some moving freight cars he had been accidentally caught between the bumpers, sustaining an injury to his abdomen. An examination upon his admission had failed to disclose any evidences of external injury. The introduction of the catheter had drawn clear urine. There had been a moderate degree of shock, and the patient had complained of severe pain in the abdomen and tenderness on palpation. Further investigation had proved negative.

The resident surgeon, Dr. Page, not having deemed the case of sufficient severity to send for the speaker, had treated the patient for shock. When Dr. Deaver examined him, upon the following day, it had been very evident, from the severity of the abdominal pain and tenderness associated with very decided rigidity of the abdominal walls, that he was suffering from a serious intraperitoneal lesion. He had decided to open the abdomen at once. As soon as the peritoneal cavity had been opened a large quantity of dark liquid blood had escaped. The small intestines had been drawn out, when the cause of the lesion had been found to be a ruptured mesenteric vein, the bleeding from which had been arrested by the presence of a large diffused blood clot occupying the interval between the layers of the mesentery. To make sure that there had been no other lesion, the large intestines, the stomach, the liver, and the spleen had been carefully examined, but with a negative result. The abdominal cavity had been washed out with warm saline solution, a glass drainage-tube had been introduced into the pelvis, and the wound had been closed. Recovery had been uninterrupted.

L. C., an Italian, aged thirty-five years, had been admitted into the German Hospital with a history of a fall of about fifty feet, striking upon his abdomen. He had been profoundly shocked and exsanguinated. The only external evidences of injury had been some slight cuts on the hands and head. A diagnosis of internal hæmorrhage had been made, and the abdominal cavity opened. Dark liquid blood had escaped as soon as the peritonæum had been opened, and the source had been found to be the mesenteric vessels. The mesentery had been torn half-way across and the intestines lacerated in four places. The mesentery had been united with a series of catgut ligatures. The rents in the intestines had been closed with the Lembert sutures. The abdominal cavity had been washed out with hot saline solution and then closed. The man had died two hours after the operation. The autopsy had demonstrated several tears in the gut which had been overlooked, and several grape-skins and pieces of fig in the peritoneal cavity.

The commonest form of intra-abdominal hæmorrhage was that resulting from a ruptured extra-uterine gestation-sac. While the rupture might be due to traumatism without any external evidence, it was usually spontaneous. While hæmorrhage from the pelvic organs of the female usually occurred from a ruptured extra-uterine gestation-sac, it might be due to other non-traumatic causes. Hæmatosalpinx might occur independently of pregnancy, and rupture either spontaneously or from traumatism. Again, degenerated blood-vessel walls, and especially veins, might rupture under similar circumstances.

M. E., aged twenty-four years, a nurse, had been admitted into the German Hospital on January 20, 1893. While lifting a heavy weight from an elevator she had felt something give way in her abdomen. This had immediately been followed by severe lancinating pain in the right ovarian region. She had been menstruating at the time. Pelvic peritonitis had promptly set in. An examination had demonstrated a tumor in the right broad ligament of about the size of a hen's egg. The peritonitis and tumor had subsided under treatment, and she had made a slow recovery. The diagnosis had been pelvic hæmatocele from rupture of an engorged ovarian vein.

Hæmorrhage itself was seldom the cause of death, but, associated as it was with shock, the degree of which was out of all proportion to the severity of the accident, it was frequently fatal in a very short time. When the peritonæum was wounded shock was still more profound—the so-called peritoneal shock.

Hæmorrhage within the peritonæum was sometimes very slight and distinctly localized, and might occur several times during the course of the illness. It might take place between the layers of the broad ligament, and soon stop from the pressure.

Dr. Deaver reported the two following cases of hæmorrhage from his list of operations for ruptured extra-uterine gestation-sac, as they illustrated so typically, he said, the wisdom of an immediate operation:

Mrs. A. K., aged thirty-one years, had been admitted into the German Hospital on September 21, 1894, with the following history: Six months prior to her admission she had been subject to attacks of vertigo and pain in the back and limbs, and for the last six weeks to a constant bloody vaginal discharge. Examination had revealed a retroflexed uterus with a slight tear of the cervix and the presence of a small movable mass behind and to the left of the uterus.

On September 25th, four days after her admission, the patient had been etherized, and the uterus had been dilated and curetted. After the operation the discharge had stopped, but the patient had gained in strength very slowly. She had been advised to submit to abdominal section, but had preferred to wait until she was stronger. On the night of November 22d she had awakened with a severe pain in the right side, and on attempting to walk to the water-closet had fainted. After having been returned to bed she had again fainted and gone into collapse, the pulse becoming almost imperceptible and the temperature falling to 96°. Under active stimulation she had reacted. The diagnosis had been made of internal hæmorrhage from rupture of a probable extra-uterine gestation-sac.

The abdominal cavity had been found filled with fluid blood and clots, and the right tube had been ruptured. The tube had been tied off and the abdominal cavity flushed with hot saline solution, a glass drainage-tube had been introduced and the wound closed. The patient had not been much shocked by the operation, but, on the contrary, had seemed rather improved. The drainage-tube had been removed on the third day, the wound had healed by first intention, and the patient had made a good recovery.

Mrs. J. W., aged thirty-six years, had been admitted into the German Hospital on November 21, 1894, with the following history: About two o'clock on the morning of her admission she had been seized with a violent pain in the lower abdomen. For this she had taken some whisky, and had been somewhat relieved. At nine o'clock the same morning she had started for market, and had suddenly been taken sick, becoming very weak and suffering from a violent pain in her abdomen. She had returned home with difficulty and had called in Dr. Hand, who had advised her immediate removal to the hospital. At the time of her admission she had been very weak, and there had been distinct tenderness over the abdomen with slight dullness on the right side. An immediate operation had been advised and consented to.

When the peritoneal cavity had been opened it had been found to contain fluid blood and clots. The right tube had been the site of a small rupture, and had been tied off and removed. The abdominal cavity had been washed out with hot saline solution, a glass drainage-tube had been introduced, and the wound had been closed. The patient had been very much shocked by the operation and had reacted slowly. During the operation hypodermatoclysis had been practiced. The drainage-tube had been removed on the fourth day, the wound had healed by first intention, and the patient had been discharged, well, on the twenty-third day.

The following case of hæmorrhage from ruptured extra-uterine gestation-sac, the speaker said, illustrated the danger of delay as strongly as the two previous cases did the efficacy of prompt interference:

Mrs. P., aged thirty years, had been a patient of Dr. S. Cooke Ingraham, of Wissahickon, who had furnished the following history:

Dr. Ingraham had first seen the patient on January 29, 1892. She had complained of severe abdominal pains of a bearing-down character, and of a sense of fullness in the epigastric region. She had been married seven years, but had never been pregnant, and had laughed at the possibility. For the past three years the menstrual flow had been decreasing in amount, and for several months past it had been very scant. The breasts had been slightly enlarged, but the areolæ had not been darkened. The glands of Montgomery had been a little more prominent than normal. She had suffered from morning vomiting for a month before.

He had been hastily summoned to see the patient on the morning of February 2d, and had found her in a state of collapse, pulseless, and with a temperature of 96·5°. She had reacted to active stimulation and had been sent to the German Hospital for immediate operation, where a diagnosis of ruptured extra-uterine gestation-sac of the tubal variety had been made. Upon her admission her pulse and temperature had been normal. She had not complained of pain. Examination by the abdomen and *per vaginam* and *per rectum* had failed to reveal any mass, although a circumscribed area of flatness could be demonstrated low down and to the right side. She had continued in this condition until February 12th, when at her own request she had been discharged. On February 23d she had been readmitted at Dr. Ingraham's earnest request. At the time of the second admission the abdomen had been markedly distended, being tympanitic above and flat below. Pulse 116, temperature 101·5°. She had complained of considerable pain.

On the following day she had been operated on, and when the peritonæum had been opened a fœtus with clots and fresh blood had gushed out. The ruptured sac had occupied the right iliac region, and had been tightly adherent to the neighboring coils of small intestines, to the cæcum, and to the vermiform appendix. After a prolonged and tedious dissection the sac had been enucleated; this had been accompanied by very free bleeding, which had made it necessary to pack the cavity with gauze. The wound had been closed with the gauze packing *in situ*. The patient had died on the following day of hæmorrhage.

The immediate effects of an injury, said Dr. Deaver, severe enough to cause a serious lesion of an abdominal viscus were sometimes so slight as to be misleading. Very often a patient with such a condition would walk to a conveyance or to the hospital, complaining only of a slight pain. In varying periods of time following the injury more decided symptoms would develop—viz., signs of hæmorrhage if the solid organs were involved, and early peritonitis if the hollow viscera were ruptured or torn sufficiently to allow their contents to escape. When this occurred an operation was imperatively demanded without delay. This was also true of hæmorrhage consequent upon the rupture of an extra-uterine gestation-sac, traumatic or spontaneous. In ectopic gestation an operation would be necessary in every case at some period of its history; therefore, if a diagnosis could be made, or even a well-founded suspicion of the condition existed, rupture should not be allowed to occur. If rupture did occur, however, immediate interference was the only certain means of saving the patient's life. The longer the operation was deferred, the greater the risk to life. Hasty operations, often made necessary by the patient's condition, were likewise less likely to reach a favorable termination. Blood clots or intestinal or gastric contents could not be washed out of the peritoneal cavity except by prolonged and repeated flushing.

The almost invariable fatality of intra-abdominal lesions of traumatic origin was so well recognized that it seemed as if there could hardly be any question as to the wisdom of opening the abdominal cavity. He would not be understood as meaning that abdominal section should be used as a means of diagnosis, but, on the contrary, he believed that every known means, with attention to the most minute details, should be exhausted in establishing a diagnosis. When a diagnosis was impossible abdominal section was justifiable only when it became the last and only chance for the patient.

He had refrained from using the terms exploratory and diagnostic incisions, believing that they not infrequently served as a shield to cover a lack of diagnostic ability. It was a moral obligation resting upon every physician and surgeon to develop to the utmost of his ability the highest diagnostic attainments. Aseptic surgery, said the speaker, had undoubtedly been one of the greatest boons to humanity that this nineteenth century had brought forth. But he thought that it afforded a great temptation to men who had not had experience and surgical training, and who had, therefore, not fully developed their diagnostic skill, to do operations which were not necessary for their patients' good, and to do them without scientific precision.

Book Notices.

On Chorea and Choreiform Affections. By William Osler, M. D., Fellow of the Royal College of Physicians, London, etc. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. x–125. [Price, $2.]

The author takes as his text Bouteille's eighty-year-old criticism: *Tout est extraordinaire dans cette maladie; son nom est ridicule, ses symptômes singuliers, son caractère équivoque, sa cause inconnue, son traitement problématique.* This is elaborated in the statement that in "the whole range of medical terminology there is no such *olla podrida* as chorea, which for a century has served as a sort of nosological pot into which authors have cast indiscriminately affections characterized by irregular, purposeless movements." Reference is made to the fact that the epidemic disorder of motion that Paracelsus called chorea Sancti Viti has a sort of prescriptive right to the name, while two centuries of usage have condoned Sydenham's error in adopting it for an affection of a totally different nature.

In order to make a classification, the author groups these various affections into chorea major, that includes the dancing mania and the various forms of rhythmical or hysterical motor disturbances, chorea minor, or Sydenham's chorea, choreiform affections, or pseudo-choreas, that include the various forms of localized or generalized habit spasm, and secondary or symptomatic choreas, that are chronic disorders of motion that depend upon degenerative and irritative lesions of the motor cortex or tract. Chorea major and symptomatic chorea, except Huntington's chorea, are not considered in the book.

The author briefly surveys the history of the disease and then gives its general ætiology. He finds that seventy per cent. of the cases occur in females, and the incidence of the disease is earlier in them than in males. In the second quinquennium of life the greatest number of cases occur in males, and in the third the greatest in females. The disease more commonly affects children of the artisan and lower classes. Lewis's conclusions as to the seasonal relationship of chorea and rheumatism are adopted. Dr. Osler thinks that there is a tendency to the disease in certain families, and that temperament plays an important predisposing rôle. In the section on psychical influence there is an error in the statement that "the strain of education, particularly in young girls, during the third decade, is an important factor"; presumably the author intended, to use his phrase, "hemidecade" or quinquennium. The author does not place much value on the imitation theory regarding the ætiology of the disease, but believes that endemics attributed to that cause are hysterical motor disorders rather than true chorea minor. And he does not attach much importance to reflex irritation as a causative factor. He has found rheumatism associated with chorea in only 15·5 per cent. of a series of 554 cases.

The symptoms of the mild, severe, and maniacal forms of chorea, the motor disturbances, the phases of muscular weakness, and the sensory and cutaneous disturbances are described.

A separate chapter is devoted to the heart in chorea minor. Professor Osler states that it is exceptional to find the heart healthy in chorea, and that in no known disease is endocarditis so constantly found post mortem as in chorea. This latter statement seems remarkable in view of the frequency of endocardial complications in acute rheumatism. In a total of 1,144 cases of chorea, 28·4 per cent. presented cardiac murmurs. The author states that these murmurs may be functional or organic, but it seems to the reviewer that the functional murmur is more frequently encountered, and is, as the author says, usually due to debility and rheumatism. Taking his own and Sturges's collected cases, a total of 153 fatal cases of chorea, a normal heart was found in only 14·5 per cent., while in a single collection of 45 fatal cases of rheumatic fever 17·7 per cent. of the subjects had normal hearts.

The author again refers to his published investigation of 140 persons examined two or more years subsequent to the attack of chorea, of whom 51·4 per cent. had organic heart lesion. Of these, 25, or 34·1 per cent., had a history of acute arthritis, and this has materially increased the percentage. Deduct these 25 cases from the total and from the total affected, making 115 for the one and 47 for the other, and the percentage of cases of organic heart disease following chorea becomes 40·8 per cent., still a high ratio. Dr. Osler considers that in the majority of cases of chorea minor complicated with endocarditis the heart trouble is independent of acute arthritis, and not associated with it, unless, indeed, the valvular lesion is to be regarded as a manifestation of the rheumatism. As Bouillaud says, *chez les jeunes sujets le cœur se comporte comme une articulation.*

Our present knowledge of the pathology of chorea is reviewed, and a comparison drawn between the features of that disease and those of rheumatism. Most observers will agree with the author that we are as yet upon the threshold only of our knowledge of the essential cause of either acute rheumatism or chorea; facts suggest an infectious origin of both diseases. Osler considers that the cause of chorea will be found to be a poison allied to that of rheumatism, but not identical with it.

The section on treatment simply reviews current knowledge.

A chapter is devoted to a brief review of choreiform affections, and the final chapter give an excellent *résumé* of our knowledge of Huntington's chorea.

There is an appendix giving an analysis of seventy-three fatal cases of chorea minor.

The book is written in the author's usual attractive style, and it is likely to give a good and definite idea of our present knowledge of this interesting disorder.

A Manual of Modern Surgery; General and Operative. By James Chalmers DaCosta, M. D., Demonstrator of Surgery, Jefferson Medical College, Philadelphia. With One Hundred and Eighty-eight Illustrations in the Text, and Thirteen Full-page Plates in Colors and Tints, aggregating Two Hundred and Seventy-six Separate Figures. Philadelphia: W. B. Saunders, 1894. Pp. 3 to 809. [Price, $2.50.] [Saunders's *New Aid Series.*]

The author states that this work is intended to occupy a middle ground between the complete but cumbrous text-book and the incomplete but concentrated compend. So all obsolete and unessential matters have been excluded, all theoretical discussion has been avoided, and an endeavor has been made to present the subject matter in a form that may prove useful to the student and the practitioner.

He states further that he has not considered ophthalmology, gynæcology, rhinology, otology, and laryngology in this volume, because in the advanced state of specialized science only the specialist is competent to write upon these branches. Though these are not mentioned, the first chapter of the book is devoted to bacteriology, which is certainly as much a special science as the surgical features of any of the above-mentioned specialties.

The author is to be commended for his reference to the latest measures; for example, he advises the use of tetanus antitoxine in the treatment of tetanus, of modified tuberculin in the treatment of tubercular lesions, and of the Pasteur treatment for rabies.

In the description of the introduction of Bellocq's cannula it might be suggested that the operator should first thread the eye of the stylet with silk that may be easily caught and drawn through the nose into the mouth, whereas an effort to thread the eye while it is within the mouth, and usually covered with blood, is a tedious matter for both the operator and patient.

A close examination of the volume will show that it is essentially practical in its scope, judicious in its advice, and likely to prove of value to the student.

A Manual of the Practice of Medicine; prepared especially for Students. By A. A. Stevens, A. M., M. D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania, etc. Third Edition, revised. Illustrated. Philadelphia: W. B. Saunders, 1894. Pp. xviii–17 to 501. [Price, $2.50.]

The appearance of a third edition of this work within two years indicates that it has received that favorable consideration that in our review of the first edition we said it was entitled to.

The author has not changed the lines on which he planned the book, and it is full of useful information for the student.

We would suggest that the administration of the thyreoid gland as a remedial measure in the treatment of myxœdema rests on a more certain platform of clinical data than might be imagined from the author's text; and that in the next edition of the work it might be well to state that the diagnosis of diphtheria is now generally held to depend upon the discovery of the Klebs-Löffler bacillus in the discharge from the respiratory passages.

Text-Book of Hygiene: A Comprehensive Treatise on the Principles and Practice of Preventive Medicine from an American Standpoint. By George H. Rohé, M. D., Professor of Therapeutics, Hygiene, and Mental Diseases in the College of Physicians and Surgeons, Baltimore, etc. Third Edition. Thoroughly revised and largely rewritten, with Many Illustrations and Valuable Tables. Philadelphia: The F. A. Davis Company, 1894. Pp. 553. [Price, $3.]

The present edition of this well-known book gives evidence of careful revision, and the author has had the services of several well-known sanitary experts to prepare special sections.

Surgeon-General Walter Wyman and Passed Assistant Surgeon H. D. Geddings, of the Marine-Hospital Service, have contributed a very complete article on quarantine that embraces the latest features of this subject.

Medical Director A. L. Gihon, of the navy, has again revised the chapter on marine hygiene, and Dr. Seneca Egbert has revised the chapter on vital statistics.

While the work does not purport to have the completeness or comprehensiveness of some text-books on hygiene, yet it is sufficiently complete to furnish the groundwork for a knowledge of this important subject.

Essentials of Chemistry and Toxicology. For the Use of Students in Medicine. By R. A. Witthaus, A. M., M. D., Professor of Chemistry and Physics in the University of New York. Twelfth Edition. New York: William Wood & Co., 1894. Pp. iv–314.

In the new edition of this popular manual the author has rearranged and rewritten the part relating to the carbon compounds, reclassified the alkaloids, and made some references to the ptomaines and leucomaines, thus making the volume as likely to prove serviceable in the future as it has proved itself useful in the past.

Essentials of Diseases of the Skin, including the Syphilodermata. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine. By Henry W. Stelwagon, M. D., Ph. D., Clinical Professor of Dermatology in the Jefferson Medical College, etc. Third Edition, revised and enlarged. With Seventy-one Letterpress Cuts and Fifteen Half-tone Illustrations. Philadelphia: W. B. Saunders, 1894. Pp. viii–17 to 270. [Price, $1.] [Saunders's *Question Compends*, No. 11.]

The author has taken occasion in the preparation of this new edition of his manual to thoroughly revise his text, and the value of the book is now enhanced by the introduction of some fifteen half-tone illustrations. The included matter has been carefully selected and the volume is likely to prove useful to students.

Blood Serum Therapy and Antitoxines. By Georg E. Krieger, M. D., Surgeon to the Chicago Hospital, etc. With Illustrations. Chicago: E. H. Colgrove & Co., 1895. Pp. 5 to 68. [Price, $1.]

In the first chapter of this work, devoted to blood serum therapy, the author states that the principles of the method are based upon the discoveries of Professor Behring, of Berlin, that the blood serum of an animal organism which has been rendered proof against a certain infectious disease has the power, when injected into another living organism, of protecting the latter against the disease and even to cure it after infection. As a matter of fact, Behring did not make this discovery, because Richet and Héricourt first demonstrated the principle in regard to staphylococcus infection, and Professor V. Babes had established it in regard to rabies, while Kitasato must be given equal credit with Behring for the work done to prove the protective power of the tetanus antitoxine.

The second chapter considers toxines and toxalbumins in an interesting review of the characteristics of those substances.

The last two chapters are devoted to tetanus and diphtheria respectively, and describe the effects and methods of production of the toxines and the antitoxines of each of these diseases.

The volume is illustrated with seven plates representing the principal varieties of pathogenic micro-organisms, and it is worth the perusal of those desiring information regarding the important subject of which it treats.

Laboratory Guide for the Bacteriologist. By Langdon Frothingham, M. D. V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated. Philadelphia: W. B. Saunders, 1895. Pp. 3 to 61. [Price, 75 cents.]

This is a concise and practical handbook for use in the bacteriological laboratory, intended to save the student's time by giving him just such data as he needs to make an examination for bacteria in general, or for any special form of micro-organism. As the author says, no single text-book describes all the methods enumerated in this opusculum. The size of the work permits of its easy use at the laboratory table.

Bacteriological technique in general is briefly referred to, the methods of staining bacteria in cover-glass preparations and in sections are described, and the various special stains for particular micro-organisms are mentioned in detail. Short sections on preparations of nutrient media and on imbedding tissues for cutting sections complete the work.

We believe that students of bacteriology will fully appreciate the author's ingenious plan.

Methods of Pathological Histology. By C. von Kahlden, Assistant Professor of Pathology in the University of Freiburg. Translated and edited by H. Morley Fletcher, M. A., M. D., etc., with an Introduction by G. Sims Woodhead, M. D. London: Macmillan & Co., 1894. Pp. xi–171. [Price, $1.40.]

That this work has passed through three editions in Germany is an evidence of its usefulness, for it was first published as an appendix to Ziegler's *General and Special Pathological Anatomy* and subsequently in a separate form. We agree with Dr. Sims Woodhead that the translator has conferred a boon on the busy student of morbid histology in acquainting him with the many useful methods described by von Kahlden.

The various chapters describe the microscope and the apparatus requisite for histological work, the methods of examination of fresh tissue, of hardening and decalcifying tissue, of imbedding, of injecting tissues, of making and mounting sections, of staining, of examining degenerated tissues, and of examining bacteria, molds, and animal parasites, while the last two chapters describe the detail of microscopical examination of special tissues and organs and of examinations made for medico-legal purposes.

The volume deserves a wide popularity among students in American colleges.

Helps in Sickness and to Health. Where to Go and What to Do. Being a Guide to Home Nursing and a Handbook to Health in the Habitation, the Nursery, the Schoolroom, and the Person. With a Chapter on Pleasure and Health Resorts. By Henry C. Burdett. With Nineteen Illustrations. London: The Scientific Press, Limited, 1894. Pp. xv–484. [Price, 5*s.*]

Whatever Mr. Burdett does he does well, and this work must be of use to many classes in a community. It is, he states, a second edition of his smaller manuals, *Helps in Sickness* and *Helps to Health*, which have been rewritten so as to combine them in one volume.

In these pages he has included the main principles of hygiene, the essentials of first aid to the ailing and injured, and a directory of institutions in England and Wales founded for the relief of sickness or bodily infirmity.

The first part of this work, Helps to Health, gives information regarding the arrangement of the nursery, the school, the care of the person, food and drink, exercise and refreshment, the choice, structure, and arrangement of a house, and the sanitary powers and duties of the citizen. Much useful knowledge is included in the portion devoted to the arrangement of the house, and the book is so written that one with the most elementary knowledge may easily understand it.

In the second part the treatment and nursing of emergencies and slight ailments is considered at sufficient length to afford much useful assistance to those who await the physician's coming. The chapter on infection and disinfection is likely to prove very suggestive to any one who has had a case of infectious disease in his home.

There is a short chapter on sick-room cookery and food.

The third part gives full particulars of the terms of entrance, and hours of attendance and admission, of all institutions in England and Wales founded for the relief of sickness or bodily infirmity.

The volume is a timely contribution to the popular literature of hygiene.

BOOKS, ETC., RECEIVED.

The Practice of Medicine. By William C. Goodno, M. D., Professor of Practice of Medicine in the Hahnemann Medical College of Philadelphia, etc. With Sections on Diseases of the Nervous System by Clarence Bartlett, M. D., Lecturer on Nervous and Mental Diseases in the Hahnemann Medical College of Philadelphia, etc. Volume I. Specific Infectious Diseases and Diseases of the Nervous System. Philadelphia: Hahnemann Press, 1895. Pp. 5 to 961.

The Physician's Vade Mecum. Being a Handbook of Medical and Surgical Reference, with other Useful Information and Tables. By Sebastian J. Wimmer, M. A., M. D. With Additions by Frank E. Parsons, M. D. Philadelphia: The Medical Publishing Company, 1894. Pp. 7 to 483. [Price, $1.]

Atlas of the Diseases of the Skin, in a Series of Illustrations from Original Drawings, with Descriptive Letterpress. By H. Radcliffe Crocker, M. D., F. R. C. B., Physician to the Department for Diseases of the Skin, University College Hospital, etc., London. Fasciculus VIII. Edinburgh and London: Young J. Pentland. New York: Macmillan & Co., 1895. [Price, $6 each part.]

Transactions of the American Dermatological Association at its Eighteenth Annual Meeting held in Washington on May 29, 30, 31, and June 1, 1894.

Twenty-seventh Annual Report of the New York Orthopædic Dispensary and Hospital.

Forty-fourth Annual Report of the Demilt Dispensary for the Year 1894.

The Rectum and Urethra as Related in Disease. By James P. Tuttle, M. D. [Reprinted from the *New York Polyclinic.*]

The Complete Method of Operation in Cases of Cancer of the Breast. By Dr. A. C. Bernays, St. Louis. [Reprinted from the *St. Louis Courier of Medicine.*]

Abscess (?) in the Urethro-vaginal Sæptum. By T. S. Cullen, M. B. [Reprinted from the *Johns Hopkins Hospital Bulletin.*]

Papillo-cystoma of the Ovary. By T. S. Cullen, M. B. [Reprinted from the *Johns Hopkins Hospital Bulletin.*]

Further Observations on the Physiological Occurrence of Conical Stump after Amputation in Children. By Charles A. Powers, M. D. [Reprinted from the *Medical Record.*]

Trophic Lesions of the Jaws in Tabes Dorsualis. By Leo Newmark, M. D. [Reprinted from the *Medical News.*]

Contributions to the Physiology and Pathology of the Nervous System. By Isaac Ott, M. D., Philadelphia. [Reprinted from the *Journal of Nervous and Mental Disease.*]

Hypnotism at Nancy. By Hugh T. Patrick, M. D., Chicago. [Reprinted from the *Chicago Medical Recorder.*]

Diphtheria. Pseudo-membranous Croup. By G. B. Thornton, M. D. [Reprinted from the *Memphis Medical Monthly.*]

Clinical Notes on the Diagnosis and Treatment of Apoplexy. By George J. Preston, M. D., Baltimore. [Reprinted from the *Maryland Medical Journal.*]

A Case of Probable Meningeal Hæmorrhage with Symptoms resembling General Paresis. By George J. Preston, M. D. [Reprinted from the *Maryland Medical Journal.*]

Detention Wards for Cases of Suspected Insanity. By George J. Preston, M. D. [Reprinted from the *Maryland Medical Journal.*]

Hysterical Pyrexia. By George J. Preston, M. D. [Reprinted from the *Maryland Medical Journal.*]

Cerebral Œdema. By George J. Preston, M. D. [Reprinted from the *Journal of Nervous and Mental Disease.*]

Laminectomy for Paraplegia from Pott's Disease. Tenotomy of Contracted Hamstring Tendons of Both Legs. Amputation at the Hip Joint. Appendicitis. Stone in the Bladder. Suprapubic Lithotomy. By F. C. Schaefer, M. D. [Reprinted from the *International Medical Magazine.*]

Trabajos é Instrumentos. Presentados en la sección de laringologia del XI Congreso Medico Internacional de Roma. Por el Dr. Ricardo Botey. [Reimpreso de los *Archivos Latinos de Rinologia.*]

The Sociological Status of Medical Practice. By Theodore W. Schaefer, M. D. [Reprinted from the *American Therapist.*]

Miscellany.

Beri-beri due to Decomposing Fish.—At the last meeting of the American Climatological Society Dr. Judson Daland, of Philadelphia, reported three interesting cases, and he has recently had the kindness to furnish us with the report in the form of advance sheets of the society's *Transactions.* With some omissions, it reads as follows:

The first case occurred in a married man, aged forty years, a native of Port Said, Suez. He states that his wife and family are in good health. When first seen by Dr. Henry C. Boenning, to whose kindness I am indebted for the privilege of making this report, quarantine physician of the port of Philadelphia, on November 12, 1893, he presented the following conditions: temperature normal, varying between 97·4° and 98·8° F.; his tongue was covered with small necrotic patches, and the intervening areas were very red in color, beefy, and deeply fissured. He complained of considerable pain over the præcordia, and at the apex there was a soft mitral systolic murmur. After a few days' rest in bed a second examination showed that he was still suffering from dyspnœa, and that there was considerable cardiac palpitation. The systolic murmur is now most distinct over the third left intercostal space, and a fine diastolic murmur can be heard, especially in the fifth intercostal space to the right of the sternum. On November 16th the heart was acting regularly, and the diastolic murmur was heard, having its point of maximum density over the tricuspid region. Later these murmurs disappeared. Emaciation was rapid; there were epigastric tenderness, muscular soreness, slight œdema of the legs and splenic region. On admission to the Quarantine Hospital the lips and face were absolutely anæsthetic, and the former could be transfixed with a needle without producing the slightest pain. Six days later intense hyperæsthesia developed in these regions, and the patient could not tolerate the contact of a spoon to the lips. The hands and feet were anæsthetic. The musculature was unusually developed, but there was no loss of power. He could flex the toes, but could not extend them. His reflexes were diminished, Romberg's symptom was absent, and the urine was normal.

Sixteen days afterward I made an examination of the blood, with the following result: The color, consistence, and coagulability of the blood appeared normal as it exuded from the puncture. The red corpuscles were normal in size, showed no microcytes, megalocytes, nor poikilocytes. The Thoma-Zeiss hæmocytometer was employed in counting the red blood-cells, which numbered 4,750,000, or ninety-five per cent., and Fleischl's hæmometer gave sixty-five per cent. hæmoglobin. There was a moderate grade of leucocytosis, and the white corpuscles numbered about 30,000 to the cubic millimetre. Many were remarkable for their gigantic size, and contained large coarse granules, not unlike the eosinophile cells that are found in such numbers in the blood of leucæmia. Blood plaques were present in moderate numbers. Careful search was made for the plasmodium of malaria, filaria, and micro-organisms, but none was discovered. As the corpuscular value of this blood was ninety-five per cent. and the hæmoglobin value but sixty-five per cent., each corpuscle contained two thirds the normal quantity of hæmoglobin. At this date there was again an alteration in his cutaneous sensibility. There was complete anæsthesia of the nasal and aural mucous membranes, as well as of the entire skin, with the exception of the deltoid regions, following more or less closely the origin of this muscle, and the left inferior axillary region, where there was an area of normal sensation covering five by two inches and a half. The knee-jerk was slightly exaggerated, and careful examination of the viscera gave negative results.

The second case was that of a man aged twenty-one years. He was admitted to the Lazaretto on November 11th, and the following is the result of Dr. Boenning's examination at that time:

Decidedly weak, legs very œdematous, intense dyspnœa, a double cardiac murmur, irregular heart, pulsating jugulars, throbbing carotids, extensive nerve disturbances, and diarrhœa. Two days after admission this man exhibited a sudden serous effusion into the tunica vaginalis. He also became anasarcous and very short of breath. A physical examination showed pulmonary œdema, a marked enlargement of the cardiac dullness, irregular ventricular action, a strong but low-pitched mitral murmur, a very well marked tricuspid murmur, a well-defined thrill over the præcordia, and pulsation of the external jugulars. His neck was somewhat œdematous. He had a cough, and occasionally expectorated frothy mucus slightly tinged with blood. In this case there was irregularity in the time of the contraction of the auricles and ventricles. The nerve disturbance was marked. There was anæsthesia of the upper lip; the lower lip was hyperæsthetic. The right upper extremity presented small areas of anæsthesia; the skin over the entire left upper extremity was devoid of sensation. There was an entire loss of the tactile sense. The abdomen was hyperæsthetic. The skin along the inner side of the thighs and anterior and outer side of the legs was anæsthetic, but a very deep puncture (half an inch) was felt. There was an entire loss of reflexes, including the cutaneous of the sole and palm.

On November 27th I examined the blood, and found that, as it exuded from the incision, it seemed rather more fluid and paler than normal. Its coagulability was unchanged, but the red corpuscles were of great variety as regards size. A few were larger than normal, and many were only half the diameter of a normal red cell.

There was a moderate number of microcytes, but there was no tendency to poikilocytosis. The Thoma-Zeiss hæmocytometer showed that there were 4,400,000 red corpuscles to the cubic millimetre, or eighty-eight per cent., and a careful count of the microcytes showed that there were 400,000 to the cubic millimetre. In counting the microcytes, all red cells having a diameter of one half or less than the normal diameter for red blood-corpuscles were counted as microcytes.

Many of these were mere round points, but their true character was made clear by the color given them by the hæmoglobin present.

There was a moderate grade of leucocytosis, the white corpuscles numbering about 40,000. They, too, varied in shape, some being as small as microcytes, and many of them were coarsely granular, resembling eosinophile cells. As the corpuscular value of this blood was eighty-eight per cent., and the hæmoglobin value but sixty per cent., each cell contained but three fourths of the normal quantity of hæmoglobin; but, as 400,000 of these red globules in each cubic millimetre were microcytes, it is plainly evident that each blood-cell contained approximately its normal quantity of hæmoglobin. As many of these microcytes were mere round points in size, it is evident that the oxidizing power of the blood was considerably reduced, and it is safe to assume that there was an actual loss of forty per cent. of hæmoglobin.

Search was made for the plasmodium of malaria, filaria, and micro-organisms, but none were discovered. His sensory symptoms were as follows: The numbness of which he complained originally had entirely disappeared. There was complete anæsthesia of the nasal and buccal mucous membranes, the palms of the hands and soles of the feet and the entire skin surface, with the exception of an area three inches and a half wide in the infra-axillary region, extending from the anterior axillary line to the vertebral column. There was no knee-jerk, and the cremasteric and abdominal reflexes were absent; the pupillary reflex was normal. Respirations were twenty to the minute, and the lungs were normal. The apex-beat of the heart was diffused, occupying an area of at least two inches and a half in diameter around the normal apex region, and was plainly felt in the fifth interspace a trifle within the nipple line.

The impulse was more forcible than normal, was regular, and there was no thrill. The area of cardiac dullness was not increased. The first sound of the heart was heavy and muscular, like that of simple hypertrophy, and was accompanied by a moderately long, rather harsh, blowing systolic murmur, which was transmitted into the axilla, and was also carried over to the right border of the sternum on a level with the fifth interspace. At the pulmonary cartilage there was a harsh, grating, rubbing, crumbling sound, and associated with this a loud, blowing murmur unaccompanied by a thrill.

At the aortic cartilage a systolic murmur was heard, which was transmitted to the right sterno-clavicular articulation, but could not be detected in the right carotid. From these physical signs it was evident that there was left ventricular hypertrophy with moderate dilatation, associated with mitral regurgitation. As the jugular veins pulsated slightly, and the mitral murmur was transmitted so far to the right, it is probable that there was also tricuspid regurgitation. The murmur at the base of the heart was probably hæmic. There was a slight enlargement of the area of dullness of the liver and spleen, but they could not be felt below the edge of the ribs. There was slight congestion of the kidneys, but the other organs were normal. The legs and thighs were moderately œdematous, and the scrotum, which had been decidedly enlarged, was then no larger than a moderate-sized pear.

The third case occurred in a man aged twenty-seven years, married, a native of Zanzibar, South Africa. His wife and family were healthy. He lived in Bombay for three months prior to going on board ship. He was admitted to the Lazaretto on November 11th, and at that time Dr. Boenning found him in the following condition:

He had had difficulty in walking since the middle of September, was weak and emaciated, and had had chills and fever. His legs were slightly œdematous, and there was a distinct diastolic murmur, soft in character, and best heard over the ensiform cartilage. His spleen was considerably and the liver moderately enlarged. His urine contained a trace of albumin. There was much abdominal tenderness, nausea, and some vomiting. On the morning of November 13th he had a pronounced chill, which was repeated on November 15th. At the appearance of the first chill the free administration of quinine was begun, the effect of which, however, did not become plainly manifested until November 15th or 16th. This man exhibited in his blood the hæmatozoon of malaria, and also profound changes in the corpuscular elements. His nerve disturbances have been marked. He presented areas of anæsthesia over the extremities, abdomen, and pectoral regions, interspersed with areas of hyperæsthesia. Nor did these remain constant, for the areas of insensibility became, after the lapse of twenty-four to thirty-six hours, hyperæsthetic. Repeated tests with the galvanic current showed the reaction of degeneration in the affected muscles.

On admission his temperature was 101·6° F.; then descended to 98° F. the next morning; then rose to 104·8° F., descending the following morning to 97·4° F., where it remained from the 13th to the 15th, when again there was a rise to 104° F. On the 16th it descended to 102° F., and rose in the evening to 102·6° F., descending the following morning to 99° F., after which time it remained normal.

An examination of the blood on November 27th showed it to be normal in color, consistence, and coagulability. Microscopically the red blood-cells were normal in size and shape, with the exception of a few microcytes and an occasional megalocyte. To the naked eye the red blood-cells appeared normal in color, though Fleischl's hæmometer showed but sixty per cent. of hæmoglobin. The Thoma-Zeiss hæmocytometer gave 4,575,000 red corpuscles to the cubic millimetre, or ninety-one per cent., so that each red blood-cell contained two thirds its normal quantity of hæmoglobin. The white corpuscles were normal in size, number, and appearance. At this date the area of normal sensation extended along the right thigh in the lower third, especially in the popliteal region, and for a distance of five inches below the joint. The remaining portions of the skin were absolutely anæsthetic and analgetic, and the penetration of the needle was carried to the point of drawing blood without producing pain.

Sensibility of the mucous membrane of the mouth and hands was preserved. The knee-jerk was exaggerated, and the pupillary reflexes were normal. The thoracic and abdominal viscera were examined with negative results, with the exception of the heart, which gave the physical signs of enfeeblement.

Remarks.—These men were all sailors, and shipped on board the steamship Lanark at Bombay, where they had been living for three months. The crew was made up of Egyptians, Turks, Indians, Lascars, Bombayans, South Africans, Soudanese, etc. The ship was in good sanitary condition, and the voyage lasted eighty-two days, during which time they lived principally upon salt fish, of poor quality and insufficient in quantity, and occasionally partook of small quantities of rice. Each of these three men had the appearance of our negroes, both in color and in the formation of the mouth, although none had their characteristic thick lips. Their hair was short and twisted, the skin was greasy, and the perspiration possessed that peculiarly disagreeable odor so commonly observed among the black race. While in the hospital they refused to eat pork, but ate freely of everything else that was placed before them.

The greatest interest in these cases surrounds the question of ætiology. Beri-beri has been observed in Japan, in portions of Africa, and in the East and West Indies, and, as has been shown by Scheube and Bailz, it is an endemic peripheral multiple neuritis. Muira believed it to be due to fish, more especially decomposed fish, while others attribute it to rice, and certain it is that these cases would tend to bear out Muira's theory. It is true that these men existed for eighty-two days upon a diet that seldom falls to the lot of man, consisting as it did almost exclusively of fish and rice. The fish was of a peculiar variety, and was brought on board and prepared by the Hindus. Some of it was dried, and much of it was spoiled. Further, the men stated that the quantity of food allotted to each was totally insufficient, more particularly when its quality was considered. All of the crew considered themselves very much superior in every way to the Egyptians, and for that reason they (the Egyptians) were only given to eat that which others refused. Then, too, the Egyptians would eat food killed and cooked by any one, whereas the remainder of the crew would only eat that which was killed and cooked by one of their own nationality. The Egyptians really were the most civilized of all, two of them speaking English fairly well, and while the whole crew were on shore at the Lazaretto the Egyptians sat at a table and used knives, forks, spoons, etc., while the others ate with their hands, sitting in circles upon the ground. Each Egyptian ate about six meals a day while on shore at the Lazaretto, and when they first landed they were half famished and excessively weak, so much so that they could scarcely stand or walk. After remaining in the hospital a few days, where they received plenty of good food and were well cared for, three of the eight were able to return to the ship before it sailed, on November 20th; one died suddenly, one eloped, and the remaining three, which are the subjects of this paper, improved so that they were able to return home on December 4th. There were several deaths during the voyage, but it is not known whether or not they were in Egyptians. It is interesting to note that the other members of the crew were practically free from disease, only one complaining of a slight swelling of the lower extremities. There was no scurvy.

The main facts, as here briefly narrated, seem to point conclusively to poisoning by some substance in the decomposed fish, probably of the nature of muscarine. In support of this view it may be stated—

1. That only the Egyptians were affected.
2. That they alone partook of the decomposed fish.
3. That the other men did not manifest this disease, even though exposed to the same general conditions, because their diet was more generous in quantity, more varied, and of better quality; and
4. That the blood examination, both microscopically and bacteriologically, showed no parasites.

These curious incidents partake of the nature of an experiment on a large scale, and the escape of the other men proves conclusively that the cause of this disease was not a general one—*i. e.*, that it was not due to carbonic-acid gas generated in the cargo of sugar, as has been supposed by Dr. A. S. Ashmead; not due to a specific poison or germ, as believed by Musso and Moullo, of Montevideo, and Simmons, of Yokohama; nor to rice, as believed by Takaki, of Tokio, but to a chemical poison or toxine like muscarine.

Cases of multiple neuritis due to this cause have been reported by Dr. J. J. Putnam, occurring among the New England fishermen who frequent the Great Banks.

Serious Symptoms Produced by the Bite of a Spider.—In the *Nouveau Montpellier médical* for February 9th M. H. Guibert relates the histories of two cases of serious poisoning following the bite of a spider. Cases of this kind, he says, being relatively rare, and, further, the noxious action of the sting of this insect having been stoutly disputed, even denied, he thought it would be useful to give an account of these cases.

In the first case, observed by the author himself, the patient, a man forty years old, was stung on the right knee. The pain persisted for some time, but was not very marked, so that the patient was able to go on with his work for about half an hour, when suddenly he felt a very sharp pain near the injured part and radiating toward the lumbar region of the same side. He became depressed, and a cold perspiration broke out, followed by trembling. The author saw him an hour after the symptoms appeared. He was then suffering from very sharp pains in the lumbar region and in the nape of the neck, the calves of the legs were attacked with true cramps, and the pulse was very small and frequent—from 92 to 100. The face was drawn and covered with a cold perspiration; it expressed great pain and considerable fear. He complained of a sensation of cold which bottles of hot water and thick coverings could not dispel. The axillary temperature was 98·3° F. The author found on the knee two small brownish points, by no means painful, surrounded by a redness due to friction with ammonia, which had been prescribed by an apothecary who had been called in before the author saw the patient. The ganglia of the groin were not swollen. M. Guibert cauterized the involved region and prescribed the immediate administration of a stimulating potion of ammonium acetate and alcohol, to be taken alternately with very strong coffee; at the same time he employed at once frictions with alcohol over the entire body. During the day the patient's condition scarcely changed; although he became a little warmer, the cramps persisted, also the pains in the lumbar region and in the neck. The following night he was restless, there was slight delirium, and he talked a great deal. The next day a slight amelioration was observed, the cramps had almost entirely disappeared, only the abdomen was very painful to the touch. The patient urinated easily, and no albumin was found in the urine. The cardiac pulsations were more energetic and less frequent, and the patient was quieter. On the following day the amelioration was marked; nothing remained but sharp colic and an irresistible desire to have the bowels moved, which it was impossible to satisfy. The author then prescribed six hundred and seventy-five grains of sodium sulphate, but this was rejected by repeated vomitings, which persisted during the day; they ceased, however, at night, when the patient was able to take a considerable quantity of champagne. A gentle purgative enema was then prescribed, which produced a breaking up, the stools showing a hæmorrhagic appearance. Gradually, however, under the influence of rest and of diet, complete quiet returned and all the symptoms disappeared, and on the eighth day the patient got up completely cured.

In the second case, which was observed by M. Gombert, the patient was stung on the right ankle, and in a few seconds the pain became so violent that he could not walk, and had to be carried to M. Gombert's house. He presented very alarming symptoms of poisoning; there were extremely painful cramps and generalized convulsive tremblings, and the whole body was shaken with oscillations which became more and more frequent and had the appearance of tetanic contractions. These attacks lasted scarcely a minute, but returned at the end of four or five minutes. In the interval the patient said he suffered all over. However, he could drink, raise himself, and hold himself erect; his mental faculties were perfect, and the pulse was strong and regular. On the ankle two almost imperceptible points were found, which were not at all painful, even on pressure. Chloral and potassium bromide were administered, and diminished the number and the intensity of the convulsive attacks; the patient was then able to return to his home. A few hours later the cramps and the pains had ceased completely, but were replaced by diarrhœa and vomiting. The vomited matter was mixed with blood; blood was found also in the stools, and later on in the urine. Some hours afterward there were bloody diarrhœa and hæmaturia, but the general condition was quite good. On the third day the patient was much better, and on the fourth day all danger had disappeared.

These two cases, says M. Guibert, present striking analogies. We see the same cause, the sting of a spider, giving place soon after to symptoms of a peculiar evolution and certainly alike in the two cases—cramps, convulsive trembling, and troubles of variable gravity involving the muscular system only, followed by gastro-intestinal and renal symptoms which, says M. Guibert, may lead us to think that the poison was eliminated by the intestine and by the kidney. These two cases scarcely accord with what Laboulbène writes in an article on spiders in the *Dictionnaire encyclopédique:* "In these regions the venom of spiders does not produce any unfavorable effects, and I will prove it. Walkenaer allowed himself to be stung by the largest spiders, and, he says, without any pain, redness, or swelling resulting. These stings did not cause any marked sensation, not any more than that produced by the prick of a fine needle in the finger. The spider's venom is, then, very much less active in man than that of the bee, of the wasp, of the gnat, of the flea etc. In central France Dugés made experiments and allowed himself to be stung by large spiders. He did not believe in the noxiousness of their venom. The danger, he said, was imaginary."

We can not in any way, says M. Guibert, subscribe to this opinion; in the two cases mentioned the relation of cause and effect was too evident to be denied. He does not ignore, he says, that the objection may be raised that the real cause, the spiders, had escaped, for in spite of a careful search he was not able to find them, and he recognizes the fact that this is a flaw, but one for which he can not be held responsible, and it can not, unfortunately, be compensated for by the description given by the patients, who were the only ones that saw the spiders.

It is none the less true, however, says the author, that it should, in future, remain accepted that the sting of certain insects or spiders may produce positive symptoms, the gravity of which varies, it is true, and the situation of which is especially in the neuro-muscular system, extending subsequently to the emunctories, causing various passing troubles. M. Guibert does not think it would be scientific, still less practical, to consider at the present time that these accidents belong exclusively to the domain of popular prejudice.

The Manufacture and Characteristics of Munich Beer.—The *Lancet's* special analytical sanitary commission has recently made an analysis of Munich beer, and made its report in that journal for February 16th. German beer, more especially the Munich beer, the commission finds, is undoubtedly becoming a very popular beverage in Great Britain. It is not "heady," and is both light and very cool. Those who can not do sedentary or clerical work after taking the strong and heavy English ales and stout are not inconvenienced by drinking lager beer. It is in every respect an excellent drink for the advocates of true temperance—that is to say, for those who are opposed alike to the intemperance of excessive drinking and to the intemperance of total abstinence. German beer ranks side by side with light natural wines, which French legislators now qualify as hygienic drinks. Of all German beers, that which is the most renowned and the most extensively drank in all parts of the world is undoubtedly the Munich beer. From time immemorial, says the writer, Munich has been renowned for its beer, and this reputation, so early acquired, may be due, in a measure, to the severity of the Bavarian laws in respect to the making of beer.

Apart from the laws restricting brewers to the use of malt, hops, and water only, there is another legislative reason why Munich beer should be of good quality. A tax has been imposed on malt since the year 1543. In the breweries there is a special apparatus which is sealed and kept under control by excise officers. The malt passes through a sort of revolving drum;

each revolution is recorded mechanically, and thus a correct account of the amount of malt that has gone through is obtained. The tax varies according to the quality of the barley employed; therefore there is nothing to be gained, so far as the tax is concerned, by using inferior qualities of barley. This malt tax being very high, it pays to have only the best quality of barley. There is another law, which, after repeating that beer shall be made only of hops, malt, and water, adds that it is especially forbidden to use barley that has not been converted into malt, or that is mixed, partly barley, partly malt. Thus this law has brought about the best fundamental conditions for the production of a really wholesome beer. One reason, says the writer, of the superiority of Munich beer is the great skill with which the barley is selected. It must have a definite amount of albuminous substances so as to produce a good fermentation, and it is not the barleys with the best exteriors that give the best results. It is, however, especially in the details of manufacture that the explanation of the excellence of Munich beer will be found. To understand the subject, therefore, says the writer, a visit to the leading breweries was necessary, and, as it was impossible to visit all these vast establishments, a selection had to be made, and the directors of the Löwenbrau, which stands at the head of the large breweries, gave every possible facility for the complete inspection of all the processes they employed in the manufacture of the most popular of German beers.

The writer gives here a detailed account of the process, and remarks that it will be seen that it differs greatly from that generally practiced in England, and that it is well calculated to produce a very wholesome beer. It will also be seen, he says, from these details that the great secret of Munich beer may be summed up in the one short word, "ice." This is the all-important secret for the production of really good, nutritious beer, which nevertheless contains very little alcohol. Great cleanliness and a very low temperature are the fundamental requisites. Formerly it was impossible to make beer in summer. Even now the smaller brewers brew only in winter, for it is only by the employment of very expensive machinery that a low temperature can be artificially created. On the other hand, a temperature which is the result of mechanical action can be much more precisely regulated.

With regard to bottled beer, after careful cleansing, and after being filled with beer and corked down by a patent air-tight porcelain and rubber stopper, the bottles are "pasteurized." This means the immersion of the bottles into a tank of water into which steam is discharged so as to bring the heat up to about 160° F., at which temperature the germs of a second fermentation are destroyed, and the beer can then be kept for an indefinite time and exported even to the hottest climates.

These are the main features of the manufacture of Munich beer, says the writer, as it was shown and explained to the commission at the largest brewery on the Continent. "We have seen," he says, "the salient points of difference between the English and German or Bavarian mode of manufacturing beer, and a knowledge of the processes which the Munich brewer employs throws considerable light on the observation that, while Munich beer serves admirably to quench thirst, yet it is devoid of those properties of English-made beer which have given rise to the proverbial saying that 'to drink beer is to think beer.'"

With regard to the analysis of the samples of the water, the yeast, and the malt, as well as the beer, the writer gives an account of the examination and the results, which, he says, are instructive in partly accounting for the differences of physiological effect between English and Munich beer. Thus, in spite of the fact that the Munich beer contains a greater proportion of nutritious malt extractives than even the strongest beer mentioned previously in the report, yet the alcohol is reduced to almost exactly half the quantity contained in the English beer. It is, however, the influence of hops and that of alcohol which combine to produce drowsiness and stupor, so that we have at once, says the writer, a complete explanation of the advantages which the consumption of Munich beer affords in this respect. The reduction of these constituents, he says, is not effected at the expense of the important alimentary constituent of beer. On the contrary, the percentage of malt extract in Munich beer is slightly in excess of that in ordinary "mild" English ale. The nutritive value of malt extractives is due in part to dextrin and malt sugars, but the mineral matter, owing to its richness in phosphate, must add largely to the nourishing properties of the beer.

The final operations of analysis were devoted to the examination of the beer for hop substitutes and objectionable preservatives, and, says the writer, the beer was found to be entirely free from substances of this class, and the search for bitter substitutes was attended with similar results. In the light of these excellent qualities, he says, which the analysis has brought to view, we are justified in regarding the beer as not only genuine, but wholesome.

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 7th inst., the special order was to be a discussion on Malnutrition, Practically and Physiologically Considered.

At the next meeting of the Section in Surgery, on Monday evening, the 11th inst., a paper entitled A Report of Thirty-five Cases of Amputation of Omentum in Hernia Operations, will be read by Dr. W. B. De Garmo. Pathological specimens, new instruments, and apparatus will be exhibited.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 12th inst., the following papers will be read: Strangulation of the Testicle and Epididymis from Torsion of the Spermatic Cord, by Dr. John Van der Poel; and Clinical Symptoms due to Chronic Prevesical Inflammation, by Dr. W. K. Otis. Cases will be presented and new instruments exhibited.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 14th inst., the following papers will be read: The Use of Alcohol in Diseases of Children, by Dr. August Seibert, and Morphinism in Children, by Dr. J. B. Mattison, of Brooklyn.

At the next meeting of the Section in Orthopædic Surgery, on Friday evening, the 15th inst., Dr. T. Halsted Myers will read a paper on the Treatment of Fractures of the Lower Extremity by Apparatus designed to Shorten the Period of Recumbency. There will be a presentation of cases and patients, and new instruments and specimens will be exhibited.

The Astley Cooper Prize, of £300, will be awarded to the author of the best essay on diseases of the joints produced by syphilis and gonorrhœa. Essays, in English or accompanied by an English translation, should be sent to Guy's Hospital, London, before January 1, 1898, accompanied by the usual motto and sealed envelope. For further particulars, address Dr. Hale White, 65 Harley Street, London, W.

A Definition of Influenza.—Dr. C. G. Carleton, of Lawrence, Mass., writes to the editor of the *Boston Medical and Surgical Journal* that a clergyman of his acquaintance defines the grippe as "a 'cold' possessed of the Devil."

The Yale Medical School.—The *Boston Medical and Surgical Journal* announces that the medical course of Yale University is to be lengthened to four years.

THE NEW YORK MEDICAL JOURNAL, March 16, 1895.

Original Communications.

SOME CRITICAL AND DESULTORY REMARKS ON RECENT LARYNGOLOGICAL AND RHINOLOGICAL LITERATURE.

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(*Third Paper.*)

Wolf, in the *Berliner klinische Wochenschrift*, No. 31, 1894, again makes a very interesting communication concerning the patient exhibited some months ago before the Berlin Medical Society from whom he had extirpated the larynx, and who later obtained a very natural voice by the use of a modified artificial larynx. The patient lived two years and a half after the operation, and died of a metastatic growth in the right lung and another in the small trochanter of the right femur. The unusual and significant feature of the case was that there was no local recurrence, and this was vouched for by Virchow, whose statement is published in the same number of the journal. Such reports have excluded from our consideration almost all questions but one in regard to the treatment of any case of laryngeal cancer when first seen:

"Is it possible in this particular case to entirely remove the growth by a radical operation?"

The dangers of the operation itself are not to be considered for a moment. Death on the operating table is preferable to death by the ravages of laryngeal cancer. Where, however, there is extra-laryngeal infiltration discoverable such an operation is useless, and a palliative tracheotomy is about all that can be done.

I imagine that the sentiments of laryngologists have undergone a great change in this respect within the last few years. Dr. Cohen's case, lately shown in New York, was a very impressive object lesson.

This change in the laryngologist's opinion is well exemplified in Dr. Semon's experiences, which he is now publishing in the *Lancet*, December 15, 22, *et seq.*, 1894.

Chiari's paper before the recent International Congress in Rome on the structure of the so-called fibromata of the vocal cords is published in the first number of the second volume of Fraenkel's *Archiv.* He finds that they are inflammatory and not neoplastic in origin, are frequently œdematous, and sometimes contain hæmorrhagic extravasations.

The paper is not only very instructive in itself, but forms an illustration of how much work remains to be done in differentiating and properly classifying very many clinical manifestations of pathological processes in the mucous membrane of the nose and throat. It is a superficial, misleading, and dangerous proceeding, on observing various protuberances of these surfaces, to calmly describe them as fibromata, myxomata, and angeiomata, when they are, in the vast majority of instances, nothing but different manifestations of chronic inflammation. It is superficial, because it is unscientific. It is misleading, because it gives a false idea of the frequency in the occurrence of true tumors. It is dangerous, because it thus forms a false basis for therapy.

It is very singular that the remarkable disease rhinoscleroma should be so closely confined to northeastern Europe and South America. It is supposed to be due to the bacillus of Frisch, but there must be other very important factors in its ætiology or it would have become more widely disseminated. It seems to be not necessarily a filth disease, as it attacks by preference the peasants and rural population.

Secretan, in the *Annales des maladies de l'oreille*, etc., for July, 1894, reports two cases in brothers who lived in a lofty valley of the Valois Alps, evidence going to show that one contracted it from the other, but how it originated in the first case no conjecture can be formed, as they had never been residents of any locality remote from their home. Secretan also reports at second hand the history of two other cases in Switzerland.

In this connection it is of interest to read Sokolowski's account in Fraenkel's *Archiv*, vol. ii, No. 1, of cases of chronic hypertrophic laryngitis, in some of which the bacillus of Frisch was demonstrated and in some it was not. Clinically the difference was indistinguishable.

Sokolowski sums up as follows:

"1. The so-called hypertrophic subchordal laryngitis is in our country (Hungary) comparatively a rather uncommon process, which usually occurs among the country people.

"2. A clinical connection with the so-called blennorrhœa of Störk I could not establish in my cases.

"3. In the majority of the cases typhus fever appeared in their history. This seems to play a certain ætiological rôle, as also appears from the observations of other authors.

"4. From a pathological, anatomical standpoint the process is to be regarded as a chronic hypertrophic inflammation, which ends in the formation of scar tissue. In a certain group of cases the specific bacillus of rhinoscleroma is to be regarded as the cause of the inflammation.

"5. Laryngo-fissure with deep excision of the proliferated part of the larynx, carried out as early as possible, is to be considered as the only proper treatment."

Fraenkel, in his paper on Pachydermia Laryngis, read to open the discussion at the International Medical Congress, and published in the first number of the second volume of his *Archiv*, adds little to our present knowledge of the subject. He, however, states for the first time, so far as I know, that Virchow exhibited a case, and gave the name to it before the Berlin Medical Society as early as 1860. Fraenkel maintains that his own explanation of the origin of the depression over the vocal processes in these cases has been supported by the majority of observers since Virchow's well-known paper in 1888 first drew the attention of laryngologists to the subject. The latter, it will be remembered, ascribed this depression in the thickened mucous membrane at that point to its being there more firmly attached to the underlying cartilage. Fraenkel says that it is due to the pressure of the opposite vocal process when they meet in phonation. The point is certainly trivial, but interesting from the fact that this depression had frequently been described as an ulcerative process or its scar.

Chiari, in the same journal, publishes a paper on pachydermia, also read in the discussion at the congress, principally on its clinical aspects. Incidentally he makes an interesting statement of his views in regard to the surgical treatment of tubercular laryngitis. At the present time this is the most important therapeutic question with which laryngologists are especially concerned, yet one which apparently has hardly interested them enough in this country to give it a trial. Chiari says:

"Until Krause and Heryng published their results laryngologists were afraid to operate on these swellings [tubercular infiltrations], because they rightly believed that tuberculosis of the larynx chiefly and essentially was influenced by the general condition of the patient. They therefore put their principal reliance in general treatment and made astringent or soothing applications to the larynx. They regarded energetic operations as hopeless, and more often as dangerous.

"But since Krause and Heryng have shown that the operative removal of the swellings and the curetting of their bases usually succeed well, these operations are now undertaken by all laryngologists, naturally nearly always only with palliative results, yet frequently also with complete local healing. . . . I need only here mention that although I have myself often tried all the methods [of operating] which are recommended, I only treat tubercular ulcers and infiltrations by operation—

"1. When dyspnœa exists, and where the stenosis can apparently be easily relieved by endolaryngeal operations; otherwise I prefer tracheotomy.

"2. When dysphagia and hoarseness are caused by easily removable vegetations, and the general condition is not too bad.

"3. When tuberculosis of the larynx manifests itself in the form of circumscribed infiltrations which can apparently be thoroughly removed, the patient being in good general health.

"But one must always remember that a radical operation is very difficult to carry out; that one can usually only bring about a temporary improvement; and that general treatment, tonics, etc., must always be given the first consideration; but one also frequently sees laryngeal tuberculosis remain stationary without local treatment; often under favorable general conditions it improves—yes, frequently even entirely heals."

It happens that in the August number of the *Journal of Laryngology* Heryng concludes his series of papers with thirty-two paragraphs of deductions from his experience. Some of these appear rather contradictory, and some of the recommendations, at least in this country, very impracticable at present; but it will be interesting to compare his indications for surgical interference with Chiari's. They are—

"1. The tubercular tumors of the epiglottis.

"2. In circumscribed chronic tumorlike infiltrations of the posterior wall of the larynx which show little inclination to break down.

"In chronic tumors resting on an inflammatory base, surrounded with proliferation products which resist all other methods of treatment.

"4. In partial disease of the larynx, even when the epiglottis, false cords, and lateral ligaments are affected."

His contraindications are—

"(*a*) In advanced phthisis of the lungs with hectic and wasting.

"(*b*) In diffuse miliary tubercle of the larynx, or rather of the larynx and pharynx.

"(*c*) In all cachectic conditions.

"(*d*) In severe stenosis of the larynx caused by inflammatory swelling of the affected parts. In these cases tracheotomy must be performed as soon as possible.

"(*e*) In patients exhibiting fear and nervous excitability, mistrust of a physician, and who are always changing doctors, especially those whose condition promises little hope of recovery."

This is all very discouraging. It reduces the number of suitable cases to so few that it leaves the problem of the treatment of tubercular laryngitis practically unsolved. When to these we add Heryng's further adjurations in regard to general treatment, which we instantly recognize as sound, the outlook is indeed dark. Nevertheless, it behooves us, as candid and unprejudiced observers, to encourage those who really have faith in it and the courage of their faith to give the method a fair trial. Certainly the sufferings of these patients can hardly be made worse. They all die without treatment and with other methods of treatment, or rather so few recover that it is hardly worth mentioning.

Capart, of Brussels, in the Belgian Society of Otology and Rhinology (*Journal of Laryngology*, December, 1894), recommends the surgical treatment of laryngeal tuberculosis, including electrolysis, and supports Krause, Heryng, and Gouguenheim especially, as to the good results in relieving the terrible pain. He also states that he uses tuberculin with considerable success.

Mr. F. Marsh, of Birmingham, reported before the British Rhinological and Laryngological Association (*vide Journal of Laryngology*, August, 1894, p. 504) a case of Multiple Adenomatous Growths of the Larynx, etc.

Wolfenden and Martin, in their *Studies on Pathological Anatomy*, report a case. Gottstein reports a case in his work on the larynx, and Beale another in the *Lancet* for October 15, 1889, but these were accompanied by evidences of general lymphomatosis.

In a paper on Subglottic Neoplasms, published in the *Journal of the American Medical Association* for September 26, 1891, I reported a case very similar to Mr. Marsh's. These two, as far as I know, are the only ones on record where local lymphoid hypertrophy has been demonstrated in the larynx.

Professor Fraenkel's demonstration of lymph nodes in the normal larynx, as reviewed in the first of these papers, explains the origin of these apparently rare growths. I say apparently rare, because both Mr. Marsh's case and my own had all the gross and clinical appearances of ordinary papilloma. I am convinced that, were microscopic examinations made of all these very common laryngeal papillomatous tumors, they would be found to be really, in many instances, something besides "papillary fibromata."

Dr. Arthur Sandford (*ibid.*) reported a case of death from convulsions six hours after scraping post-nasal adenoids under cocaine. Mayo Collier also mentioned a case, and Lennox Browne said he knew of another. Some of those present were disposed to ascribe the unfortunate result to the cocaine. This may be doubted. At any rate, the trouble evidently was central. The case of wryneck recently reported by Dr. C. H. Knight before the Neurological Section of the Academy of Medicine followed an ether operation for adenoids. I believe that I have also seen such a case, but of a less marked degree than Dr. Knight's. I imagine that the trouble here is a local one, depending upon an extension of the traumatic inflammation into muscular sheaths near their origin of insertion at the base of the skull. A number of cases of hæmorrhage after adenoid operations have been reported, and several deaths; but it is a singular and striking fact that no case of sepsis has ever been noted after such a lacerating operation in this streptococcus-haunted and lymphatic-channeled swamp.

It is encouraging to observe what a hearty reception abroad the work of our health board in diphtheria has received. Dr. Park's and Dr. Beebe's paper was published in full in the *Journal of Laryngology*, and Dr. Wolfenden, in his address as president of the British Rhinological and Laryngological Association, mentioned it with high praise. Loeffler, in his address before the German Diphtheria Committee, at the Eighth International Congress for Hygiene, etc., in Budapest, spoke of the routine adopted for diagnosis by the New York health board as one worthy of imitation. There are very few men, even in our large cities, who have the requisite scientific training and special experience; there are very few laboratories in this country, with the requisite facilities, where reliable reports can be obtained. No doubt the example set by our health board will be followed in other cities in this country, successfully in some, but in many it is doomed at first to the mistrust that will arise from the mistakes of embryo bacteriologists. Time, however, will remedy all this.

The diphtheria antitoxine discovery is now passing through the hysterical stage in which sanguine vociferation takes the place of prosaic proof. The tuberculin fiasco is too fresh in our minds to allow us to do more than pray devoutly that it is all true.

Again attention is drawn to the rediscovery of an instrument by our transatlantic brethren. Ziem has described an electric nasal saw in the *Monatsschrift f. Ohrenheilkunde*, No. 7, 1894. We in America can not help smiling at the somewhat polemical tone he takes against gentlemen on the other side who published accounts of similar instruments in 1891 and 1892, when we look at the cuts of Dr. Roe's instrument in the *Transactions of the American Laryngological Association* for 1888, p. 205. Ziem's instrument is rather more crude, but of exactly the same design. The late lamented Dr. Potter, of Buffalo, also invented one. Dr. De Vilbiss has tried in vain, I am afraid, to adapt his electric saw to intranasal work. None of them are very satisfactory.

Smooth Atrophy at the Base of the Tongue and its Relation to Syphilis is a very interesting and careful paper, in vol. cxxxviii, No. 1, of Virchow's *Archiv*, by Professor Lewin and Professor Heller, of Berlin.

Tertiary syphilis, resulting in the degeneration and destruction of the glands at the base of the tongue, causing the so-called condition of smooth atrophy, seems, from the records of the authors, to have been more often recognized post mortem than *intra vitam.* As the affection rarely gives rise to subjective symptoms, as it is not always easy to recognize the condition in the laryngoscope, and as even palpation sometimes fails to reveal it, this is not to be wondered at.

Moreover, it is not pathognomonic of syphilis, for it also occurs, though less frequently, in non-syphilitic cases. In this connection it may be well to remark that Swain (and perhaps others) has shown that the lymphoid tissue, which has its chief site in immediate contact with the fibrous walls of these glands, is usually atrophied in phthisis pulmonalis and other wasting diseases. I have been repeatedly struck with the clinical rarity of lymphoid enlargements—those, for instance, of the faucial and pharyngeal tonsils—in tubercular cases.

The investigations of Lewin and Heller, and of others whom they quote, have shown that these lingual glands are relatively much more numerous to the square centimetre in children than in adults. The pathogenesis of the atrophy in these syphilitic cases is supposed by the authors to be due to previous syphilitic infiltrations which have started the atrophy by pressure.

The syphilitic infiltrations after a time disappear, but the glandular atrophy goes on. From my own histological observations in nasal pathology their conjecture seems extremely plausible. It will be interesting to observe now if clinical reports of cases follow this very carefully prepared dissertation, for, although Virchow first described the condition many years ago and it has since figured in his post-mortem reports, and although others have occasionally mentioned it, attention has not heretofore been so prominently called to it.

Botey in his Spanish journal, *Archivos Latinos de Rinología*, etc., for August, 1894, publishes a paper on Paræsthesia of the Nose and Throat, which some of our radical brethren might read with profit and which others may read with pleasure. His conclusions may be transcribed here:

"1. Neurasthenics and those who are simply nervous and very irritable suffer sometimes from a sensation of oppression, of obstruction, of heat, of discomfort in the nose or back of the nose which hardly ever corresponds with any appreciable lesion.

"2. Pharyngeal paræsthesia is very much more frequent in these individuals, and is almost always localized at the level of the hyoid bone and at the base of the posterior pillar.

"3. Laryngeal and tracheal paræsthesia at the level of the cricoid and of the two first rings of the trachea.

"4. In neurasthenics with pharyngo-laryngeal paræsthesia are frequently found tonsils somewhat hypertrophied, granulations in the pharynx, varices at the base of the tongue, but in ninety per cent. of the cases, contrary to admitted opinions, after the most careful and energetic treatment of these material lesions, the trouble persists.

"5. It is to be noted that almost all of these paræsthetics present a certain amount, though to not a very marked degree, of pharyngeal and laryngeal anæsthesia—that is, a more or less marked dysæsthesia or hypæsthesia of these organs.

"6. Sometimes in these same patients there occurs slight suppression of secretion of those mucous membranes which at intervals appear less moist in places than ordinary, and rarely, even quite dry."

I am sure a good many of us bear our candid Spanish *confrère* company in retrospective visions of futile onslaughts on pharyngeal granulations, lingual tonsils, long uvulæ, and the like.

Lavrand, of Lille, in *La revue de laryngologie*, etc. (No. 16, August 15, 1894), sums up his studies of the distortion of the superior maxillæ accompanying lymphoid hypertrophies in the pharyngeal vault as follows:

"1. In obstruction of the upper respiratory passages evidenced externally by the 'adenoid facies' the deformities are more apparent than real.

"2. The bones of the face and the maxillary sinuses are not modified in an appreciable manner in their development. If the cheek bones appear flat it is because the opening of the mouth drags upon the muscles, and suppresses thus the usual muscular protrusion which fills in the osseous depressions at this point.

"3. The external nose (hard parts and soft) which is flattened transversely, the superior dental arch, and the vault of the palate are the only parts which are actually deformed. The ordinary U-form of the arch frequently becomes a V from narrowing at the site of the premolars, because the cause exerts its action at this point. The retracted palatal vault takes the ogival form, but its depth has not really increased.

"4. The nasal fossæ proper are not modified.

"5. These deformities of the external nose, of the arch and of the palate, have as a cause obstruction of the upper air-passages (nose or nasopharynx), and most frequently by adenoid tumors which make a more complete and more permanent obstruction than other lesions. There results from this habitual mouth breathing—that is to say, opening of the mouth and dropping of the inferior maxilla. It follows that the muscles of the upper lip and of the cheek are dragged upon—are stretched; they represent elastic bands which exert a gentle but permanent action upon the subjacent bony framework (external nose, superior dental arch, and palate), and tend to press them inward. The inferior maxilla suffers much less from this influence because it is more compact and more resisting.

"6. The deformities are the more accentuated the earlier and more completely the obstruction is established.

"7. In order to prevent or correct these deformities it is necessary to re-establish as soon as possible the permeability of the nasopharyngeal tract. Still more is necessary: the obstruction removed, habitual nasal respiration with closure of the mouth should be obtained at any price, in order to suppress the action of the elastic bands."

Lermoyez, in the *Annales des mal. de l'oreille*, etc., October, 1894, reports a case of post-nasal adenoid in an adult the ablation of which was followed by pulmonary tuberculosis. This, however, was merely suggestive. Later he operated on a child of six with a tubercular family history. It was a poorly developed child and suffered from the symptoms of "adenoids." The operation was soon followed by recurrence of the growths. A second operation followed, and this time the growths were examined microscopically and found to be largely made up of tubercular tissue. The child recovered under hygienic treatment. In an Address on the Channels of Infection in Tuberculosis, by G. Sims Woodhead, published in the *Lancet*, October 27, 1894, attention is strongly drawn to the cervical lymphatics, connecting the lymphoid material in the throat with the bronchial glands, as the channel by which the tubercle bacillus enters the pulmonary parenchyma. In a very careful paper in Virchow's *Archiv*, Band 138, Heft 3, Dr. Emil Krückmann shows that the cervical lymphatics become infected with tuberculosis either from the tonsils downward or from the glands at the pulmonary hilus upward by retrogression. The tonsils may occasionally be primarily affected, and through the cervical lymphatics infect the lungs; but in nearly all fatal cases of pulmonary phthisis he found that the tonsils had also become involved, and the evidence in many of the cases went to show that the primary infection was in the lungs, and that the tonsils became involved subsequently from the sputum passing over them. In some cases it was impossible to say which lesion was the primary one, the tonsillar or the pulmonary. In children, tonsillar infection was evidently frequently the primary lesion.

Clinically, the evidence all points to the facts observed by Krückmann at the autopsy table. In adults the infection seems usually primary in the lungs. In children the lymph nodes of the whole gastro-intestinal tract from the "pharyngeal tonsil" to "Peyer's patches" are evidently the absorbing spots of tubercular infection.

Dr. Cagney, in the *Lancet* for June 16, 1894, plunges into that bewildering maelstrom of laryngology and neurology, the much-debated question of abductor laryngeal paralysis. Semon and Horsley, Dionisio and others, have pretty conclusively, at least in the present state of our dim knowledge, demolished Krause's theory of contracture, but as yet they have been unable to explain why the abductor elements in the recurrent nerve and in the nerve centers are so much more vulnerable than the adductor. Dr. Cagney says it is presumably a matter of difference in nutrition. It has long been known that the nerve centers have atrophic or nutritional influence upon the nerves and muscles connected with them. Dr. Cagney says the abductor filaments of the recurrent laryngeal nerves have been positively shown to have no cortical center, while all spinal nerve filaments have a cortical as well as a bulbar center. In this fact he sees an explanation or a hint to an explanation of the special vulnerability of the abductor apparatus of the larynx.

It will be remembered by the few who have followed the subject that Semon and Horsley demonstrated that extirpation of one cortical laryngeal center produced no effect on phonation, and that the stimulation of one cortical center produced double laryngeal motion. Masini has lately stated that with a *weak* electric current stimulation of one cortical center was observed to produce laryngeal motion *only* on the opposite side.

Semon has subsequently said that he had not been able to observe this, and now Onodi (*Berlin. klin. Woch.*, No. 48, 1894) says that he also has been unable to confirm Masini's statements in this regard.

Onodi then quotes Goltz as having reported extirpation of both cerebral hemispheres, the thalamus opticus, and the corpus striatum, in three dogs. They retained their phonatory motions in the larynx. Onodi, by a series of experiments on dogs, confirms this, and further says in summing up:

"The region whose preservation makes sound production possible extends together with the posterior elevations (of the corpora quadrigemina) eight millimetres. The upper boundary line is the transverse furrow which separates the anterior from the posterior elevations; the inferior line runs transversely across the surface eight millimetres below and behind the former. In this region eight millimetres in length a center exists which renders sound production possible, when the parts above are entirely severed. With a lesion, or an excision of this area, voice production stops and only inspiratory widening of the glottis can take place.

"Besides this I have produced lesions which were confined to one half of the fourth ventricle, including the region above the vagus center, which, however, produced no change in the voice formation of the living animal; the motion of the vocal cords persisted."

He suggests observations on the voice formation of acephalous monsters and subsequent post-mortem dissection. Some have been born alive and died after a few hours or days.

It is to be hoped that *Our Animal Friends* will not light upon this paper. It's "a long cry" to Budapest, but they might there gather some embarrassing data. The details of Onodi's experiments in this respect are related with a *sang-froid* that smacks of Oriental sentiments toward the lower animals.

Our old anatomical text-books used to teach us that the crico-thyreoid muscle pulled the thyreoid cartilage, the box of the larynx, down toward the cricoid, but now "*nous avons changé tout cela*," and we know that the cricoid and the trachea are pulled up toward the thyreoid cartilage which hangs from the hyoid bone and that from the inferior maxilla. Necessarily, we have been told, if the cricoid cartilage is pulled up the arytænoids which rest upon it must also be elevated. This confirms, we have been told, the laryngoscopic image which shows the elevation of the glottis during high notes and tension of the vocal bands. Now Newmann, in the *Annales des maladies de l'oreille*, etc., for November, 1894, says—and here I sympathize with him—that he has been puzzled to know why it is that in cases of paralysis of one vocal cord the affected arytænoid cartilage lies behind the sound side. He then shows very satisfactorily that while the anterior portion of the cricoid cartilage is raised by the action of the crico-thyreoid during phonation and the adduction of the cords, the posterior part—that part lying behind the articulation of the inferior cornu of the thyreoid cartilage with the cricoid—is lowered. That, in other words, we have here a lever action with the hypomochlion at the crico-thyreoid articulation, the power exerted on the long arm of the lever and the arytænoids or the weight on the short arm. Hence the contraction of the crico-thyreoid, while it may raise the cricoid cartilage and the trachea, exerts its principal action anteriorly, while the posterior portion is lowered, at least in its relation to the thyreoid. The fibers of the thyreo-arytænoideus are so arranged that their action on the vocal processes tends to pull them downward. Jeleneffy has shown that some of the fibers of the crico-thyreo-arytænoideus posticus when the cords are in adduction tend to pull the arytænoid cartilages backward, especially to tilt the tops of the arytænoids toward the rear. A study of the movements of the articular facets of the crico-arytænoid joints upon one another shows that in adduction the vocal process slides downward as well as inward. He says that the appearance of the paralyzed cartilage in the laryngeal mirror as lying below the sound side is an optical illusion due to the obliquity of the laryngeal mirror. The paralyzed cartilage lies in a plane behind that of the other, and seen from above looks lower, and this is still further accentuated by the cartilage being tilted backward so that its tip *does* lie in a lower plane than the tip of the opposite cartilage.

Newmann thoroughly supports his assertion by a number of very ingenious experiments upon dogs.

The Riverside Association.—We learn that this charitable organization, having an establishment at No. 259 West Sixty-ninth Street, has opened a hydriatric department where the poor will be treated without pay.

The Death of Dr. Daniel Hack Tuke, the well-known English alienist, is announced as having taken place in London on Wednesday, the 6th inst. He was sixty-eight years old.

CLONIC SPASM OF THE TENSOR TYMPANI.

By R. C. HEFLEBOWER, M. D.,
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This curious and obscure affection is but infrequently met with, and is one of the most interesting that the otologist has to deal with. It has been mentioned by some of the writers on diseases of the ear, and has been entirely ignored by others.

It was referred to as early as 1840 by Müller (1), who attributed the clicking noise observed to a contraction of the tensor tympani; Hyrtl (2), on the other hand, attributed it to a contraction of the tensor palati. Politzer (3), in 1862, described it as a clonic spasm of the tensor palati, as did Luschka (4) in the same year. Boeck (5) reported a case in which there was an audible clicking in the ear that was synchronous with a clonic movement of the soft palate and the larynx. Urbantschitsch (6) mentions a case in which he was able to stop the noise temporarily by making pressure with the fingers on the soft palate. In this case the noise could be heard at a distance of fifty centimetres. In another of his patients, lying on the right side would bring on the noise in the opposite ear. In still a third patient the noise was brought on by any fright and was present only when the patient was awake. This patient was a girl twelve years of age, and a year previous to the time of his observation had suffered from an attack of chorea minor. He attributes the noise to the clonic contractions of the tensor palati. Schwartze (7), in 1867, made a contribution on clonic spasm of the tensor tympani. In the case reported he observed a sudden sinking in of the central portion of the membrana tympani and also that part situated posterior to the handle of the hammer; simultaneous with this there was a clicking noise that could be heard at a considerable distance. These occurred several times in quick succession, and after a short pause reoccurred. He noticed, also, the synchronous movements of the soft palate. Leudet (8) reported a case in 1869 that was associated with neuralgia of the superior maxillary nerve and facial spasm. Schwartze (9) says that in most cases there is the synchronous movement of the soft palate and the larynx, but there are also cases in which the affection is situated in the tensor tympani alone. In a case reported by Blau (10) there was neither a subjective nor an objective noise. Politzer (11) states that the hearing distance is lessened during the spasm. Bürkner (12) has noticed spasm of the tensor tympani occur during catheterism. He (13) refers to the affection as a clonic spasm of the tensor tympani, and says that in the majority of cases the cause is unknown. Moos (14) mentions a case in which each motion of the jaw in mastication caused a contraction of the tensor tympani. Walb (15) saw a case in which the noise could be heard the entire width of a room; this patient had suffered a hemiplegia of the left side which preceded the onset of the spasm of the tensor tympani; the sinking inward of the membrana tympani was observable in this case, and the implication of the soft palate was likewise present.

I have recently examined a case of clonic spasm of the tensor tympani, with all the throat complications present to a marked degree.

The patient is a woman thirty-five years of age, married, the mother of one child; she is in excellent health, and has had no illness for several years. In the right ear there is a chronic otorrhœa of many years' standing. There is a large perforation downward and backward. Four weeks' treatment has stopped the discharge, and the perforation is very much less in area. The hearing distance for the watch is an inch; for the tuning-fork six inches. In the left ear the membrane is a little lax; the reflex is absent; hearing distance for watch, sixteen inches.

The patient complains that she has had a clicking noise in the ears extending over a period of several years, and that this is accompanied by a twitching of the muscles of the throat. She states that it is becoming worse, and that it annoys her excessively; in fact, she comes to have it relieved and says nothing about the otorrhœa. It is worse when she makes any marked exertion, such as running upstairs, walking hastily, etc.; sudden fright will increase it to a great degree; it is worse at the time of the menses. On the other hand, it is only slightly annoying when she is quiet.

Upon watching the right membrane (the perforated one) no movement could be observed, although the clicking noise could be faintly heard. In the left ear, however, a very perceptible indrawing of the central and lower part of the membrane could be seen at the time of each click; the muscles of the soft palate contracted synchronously with the tensor tympani. The larynx is not in the least implicated.

It is worth while to note, in connection with this case, that her father was at different times during his life insane, and in fact died in an asylum.

In each ear the clicking is simultaneous with that in the other, and is never rhythmical. It comes at very irregular intervals, and is louder at certain times than at others.

Some time ago I saw another case of this same form of aural affection, and it was even more marked than the one I have just referred to, the sound being perceptible at the distance of two feet at times. The throat complication was also more marked, the larynx being markedly affected. This patient was a man of mature age, and was considerably affected mentally, verging, indeed, close upon insanity.

The point that strikes one most forcibly in comparing these two cases is the fact that the father of the first patient was a confirmed lunatic, while the second was himself bordering upon insanity. Is there any connection between the cause of the mental condition and the cause of the aural?

The ætiology of this affection is indeed very obscure. That it is neurotic in origin there can be no question whatever. As to the exact form of the neurosis there is room for a difference of opinion. To my mind, the affection has all the characteristics of a distinct form of chorea minor. It is well known that adults may be affected with either of the forms, and that in many cases the mind is affected to a greater or less extent; it is likewise a well-known fact that in many cases of chorea there can be traced some neuropathic heredity, such as epilepsy, insanity, or chorea. In one of the cases, that of the girl, mentioned by Urbantschitsch, the cause was fright; this is likewise a not infrequent cause of chorea. Leudet's case was associated with facial spasm, or "*mimischer Krampf*," which is a neurosis in nature allied to chorea. Charcot and S. Weir Mitchell have described a methemiplegic chorea; might not Walb's case, referred to above, have been one of this nature? We know that the pathology and the ætiology of chorea are well-nigh inseparable, and that the pathological anatomy is very obscure.

Let us look, for a time, at the nerve supply of the parts immediately and remotely involved in the phenomena connected with this affection. It may shed light on the nature of the disease.

The tensor palati and the tensor tympani both receive their nerve supply from the otic ganglion, which communicates with the facial and glosso-pharyngeal nerves through the small petrosal nerve and the tympanic plexus. Its motor root is received from the inferior maxillary branch of the fifth, and it communicates with the sympathetic system by a filament to the plexus about the middle meningeal artery. Meckel's ganglion, which also takes part in supplying the muscles of these parts, receives sensory fibers from the two spheno-palatine branches of the superior maxillary nerve. It receives motor fibers from the facial through the Vidian. It sends out four sets of branches—upward, to the orbit; downward, to the palate; inward, to the nose; and back, to the palate. The descending branches are distributed to the roof of the mouth, the soft palate, the tonsil, and the lining membrane of the nose. The Vidian nerve leaves the back part of the ganglion, passes through the Vidian canal, and gives filaments to the back part of the roof of the nose and the sæptum and that covering the Eustachian tube. The large petrosal branch of the Vidian ultimately joins the ganglionic enlargement of the facial.

The glosso-pharyngeal nerve also communicates with the facial by a branch just below the petrous ganglion joining the facial just outside the stylo-mastoid foramen.

Thus it will be seen that the communication between the nerves supplying the various groups of muscles in this region is at once intimate and complete.

Taking the several muscles concerned, we find:

Tensor tympani supplied by otic ganglion.

Tensor palati supplied by otic ganglion.

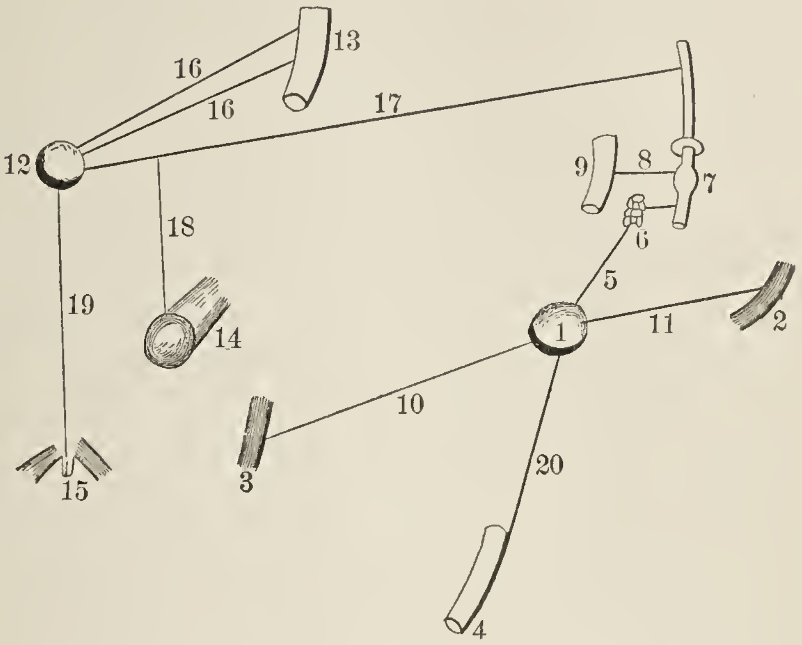
Levator palati.... }
Azygos uvulæ.... } supplied by Meckel's ganglion.
Palato-glossus.... }
Palato-pharyngeus. }

Muscles of pharynx supplied by glosso-pharyngeal and pharyngeal plexus.

The accompanying diagram will make plainer the nerve supply of the various muscles.

This shows diagrammatically the intimate relations existing between these important nerve centers, and it can be very readily appreciated how anything that influences one might also influence the other. Thus, any pathological condition of the otic ganglion might act reflexly on Meckel's ganglion, or, conversely, a pathological state of the latter might act in the same manner upon the former.

Intimately connected as these two ganglia are, it is more than probable that an affection of one is frequently associated with that of the other; thus, supposing clonic spasm of the tensor tympani to be an affection of the otic ganglion, it is well-nigh impossible that the tensor palati, which is supplied by the same ganglion, should escape. It is highly probable that the two muscles are involved simultaneously, though it will require more extended and more exact observation to prove this. Patients usually state that the ear is first affected, and subsequently the palate; but the chances are that the two are affected from the first, but that from the fact that the aural symptoms are the more pronounced they are supposed to have been first present.



1, otic ganglion; 2, tensor tympani; 3, tensor palati; 4, inferior maxillary nerve; 5, small petrosal nerve; 6, tympanic plexus; 7, facial nerve; 8, communication between glosso-pharyngeal and facial nerve;. 9, glosso-pharyngeal nerve; 10, branch to tensor palati; 11, branch to tensor tympani; 12, Meckel's ganglion; 13, superior maxillary nerve; 14, Eustachian tube; 15, muscles of palate; 16, spheno-palatine nerves (sensory); 17, Vidian nerve (motor); 18, branch of Vidian nerve to Eustachian tube; 19, branches of Meckel's ganglion to palate.

It seems to me, then, that clonic spasm of the tensor tympani and the muscles of the soft palate, and sometimes those of the throat, is due to a pathological condition of the otic ganglion, and frequently of Meckel's as well, with occasional involvement of their branches of communication with other nerves. Whether this is secondary to preceding changes in other centers, which might also have an influence upon the mental condition of the patient, is a question that can not be answered at the present time, but it is possible that further investigation may determine it.

In this connection I may merely mention the fact that blepharospasm and certain twitchings of the orbicularis palpebrarum seem to be allied to spasmodic contractions of the tensor tympani, and the possibility of a connection between the two affections of entirely different sets of muscles. Owing to the communication between the facial nerve and Meckel's ganglion, there may indeed be some direct connection between these forms of muscular affection.

As to the prognosis of this condition it is difficult to say much. It usually does not increase after a certain stage has been reached, and hearing is not seriously interfered with. The patient can be assured with a reasonable degree of certainty that it will not cause any marked degree of deafness, although any complication—such as chronic catarrhal disease of the middle ear—may impair the hearing to a considerable extent; if this is present, it should of course be recognized.

In treating the affection, much has been recommended, including some very radical measures; but the results of all treatment have been slight. Proper hygienic measures are, of course, not to be neglected, and regular exercise, baths, etc., are a matter of importance. Arsenic is a useful remedy, and acts best in the form of Fowler's solution, and in fairly large doses. Bromide of potassium may be useful if there is much complaint of restlessness at night, general nervousness, etc. The constant current is of value if properly employed. To derive the greatest amount of benefit, one electrode should be applied just beneath the ear or behind it, and the other in contact with the soft palate or some point within the pharyngeal cavity. In severe cases it has been advised that the tendon of the tensor tympani be divided, but this would give only partial and temporary relief at best. Moreover, it has no influence on the pharyngeal portion of the trouble, which is often quite as annoying as the tympanic. Inflation of the middle ear is of occasional service, but it must be very frequently employed. The constant current and nerve tonics will perhaps do as much toward relieving the patient as any other course of treatment.

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TWO CASES OF
SEVERE POST-PARTUM HÆMORRHAGE
TREATED SUCCESSFULLY BY DR. R. H. M. DAWBARN'S METHOD OF SALINE ARTERIAL INFUSION.

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IN November, 1892, I was called to attend Mrs. S. in her third confinement. She lived about four miles out of town. On my arrival at her house I found her in a dying condition. The child had been born, the placenta had come away, and flowing had followed until the woman had fainted and was almost completely exsanguinated. She was pulseless, semi-unconscious, muttering, with pupils dilated, features pinched, skin cold and bathed in perspiration, breathing rapid and gasping; in short, she presented all the symptoms of great loss of blood. I lowered her head, raised the foot of the bed, and placed the pillows under her feet and legs to keep them well up, not thinking it advisable at this moment to lose the time necessary to bandage her legs. I gave her full doses of ergot, whisky, and morphine hypodermically, removed a large number of clots from the vagina and uterus, irrigated the uterus with very hot water, filled the rectum with the same, and applied hot-water bottles to the body. The uterus contracted but the pulse did not return, the pupils remained dilated, the breathing grew worse, and death seemed at hand. The patient was so weak that I did not consider that the saline solution thrown into the cellular tissue would be of much if any value, and the time required for venous transfusion put it out of the question, so that to me there seemed to be nothing left but to try Dr. R. H. M. Dawbarn's method of arterial infusion. I had a small fountain syringe, also my hypodermic, with me, but no catheter. I hastily prepared the saline solution, making it very hot, considerably hotter than I could tolerate on my hand. I nearly filled the fountain syringe with the solution and placed it on a nail above the bed. I then felt for the femoral artery, which I could barely detect. I passed my hypodermic needle slowly and carefully into the tissues over the artery, watching intently for the arterial fluid, which soon appeared in the needle, when I cautiously placed the end of the rubber tubing over the needle and had my only assistant (a neighbor woman, who fortunately was endowed with a fair share of common sense as well as a goodly amount of courage) tie it firmly for me. The needle was now intrusted to this woman, whom I cautioned not to allow it to move in any direction. This instruction she faithfully carried out. I now examined the saline solution and, finding it hot enough, I raised the syringe or fountain about seven feet above the femoral artery. I kept the solution as nearly of a uniform temperature as possible by adding more of it from time to time of a higher temperature. I can not say just how much of the solution was introduced or how long the operation lasted, as I was too busy to pay much attention to time or exact quantities. It was good results I was looking for, and such were realized. The pulse returned slowly, the pupils contracted, the breathing grew better, the skin became warmer, consciousness returned, and my patient's life was saved. As soon as she had a fair pulse at the wrist I withdrew the needle. She made a good recovery, and never complained of any pain or soreness at the site of the introduction of the needle or in the course of the femoral artery.

My second case occurred on the 27th day of January, 1893, and was also a case of post-partum hæmorrhage, quite as severe as the case just detailed. After the use of the remedies described in the former case I resorted to arterial infusion, with the same happy results. In this case my only assistant was a nervous and timid woman, and I was compelled to perform the operation as follows: As soon as the needle entered the femoral artery I seized it close to the thigh with a Tait's hæmostatic forceps, using sufficient force to hold the needle firmly without injuring its lumen, the forceps lying on the thigh, handles toward the knee. Two or three strips of rubber plaster served to hold the forceps firmly to the thigh, rendering it impossible for the needle to escape from or penetrate deeper into the artery; in fact, it immobilized the needle almost perfectly, making the application of a rubber tube an easy matter, and leaving me free to look after the saline solution, pulse, or whatever might require my attention. I am fully persuaded that had I not made use of this rapid, easy, safe, and ingenious life-saving means, the product of the genius of Dr. Dawbarn, both my patients would have died.

FRACTURES OF THE ORBITAL WALL AND MARGIN.*

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FRACTURES of the orbit, irrespective of the interest they invite, as a study in themselves, are of decided importance viewed in the light of their relations to fractures at the base of the skull, associated or unassociated with injury of the cerebral mass, as well as their relationship to severe traumatism of the globe. There is a paucity of literature upon the subject of orbital fractures which renders it but a barren field to the bibliographer, while it adds much to the interest of the writer.

In the text-books upon ophthalmology the subject is conspicuous only by its absence, with the interesting exceptions of Noyes and Fuchs. In the American and English books upon general surgery, and in works devoted exclusively to fractures, few cases are to be found. The exceptions to these we note in a series of twenty-three cases reported in Hewitt's *System*, to which we may add nineteen cases reported by Berlin and a series of cases, with statistics, by von Hölder. Guthrie, in his very interesting *Commentaries on the Surgery of the War*, and McLeod, in his *Notes on the Surgery of the Crimean War*, throw much light upon and add much interest to orbital fractures resulting from bullet wounds, and their connection with injuries of the frontal lobes of the cerebrum. No particular classification of orbital fractures has been attempted, and yet such a classification is not alone justifiable, but is essential to a systematic study of this subject.

For a clinical study of these cases I shall consider—

1. Fracture of the orbital margin by direct force, and usually unassociated with severe injury to the globe.
2. Fracture of the orbital wall by indirect force, transmitted from the orbital margin or other parts of the skull, and usually associated with ocular injury or with injury to the brain.
3. Fracture of the orbital wall from direct force, usually spoken of as "penetrating fracture," and always associated with more or less severe injury to the globe or contents of the anterior or middle fossæ.

It is my belief that almost all cases of orbital fracture can be properly considered under one of these heads.

Under the third division may be considered, very properly, those interesting bullet wounds, with but rare exceptions, occurring in war surgery alone, which enter the temples, pass through the greater wing of the sphenoid, and traverse one or both orbital fossæ.

At this point it may be well to consider in a careful manner the particular liability of certain regions of the orbit to fracture, as well as the manner in which fracture is brought about. The conclusions I have arrived at are based upon experiments conducted upon a number of skulls, a careful study of most of the accessible reports of such cases, as well as the confirmatory evidence of a study of the bony anatomy of the orbital fossæ. It may be noted that the outer orbital wall is the best protected, having the external angular process of the frontal bone and the frontal process of the malar bone as a buffer. Bodies striking upon this point are apt to be reflected upward upon the frontal, back upon the temple, or downward to the cheek. Force applied to the outer wall direct is apt to be turned aside to the apex. I do not believe that fracture of the lower wall or floor occurs from a blow upon the margin—at least it must be one of the greatest rarities. Fracture of the floor by direct force, usually a "penetrating fracture," is not uncommon, although less so than "penetrating fracture" of the roof. This fracture of the floor usually results from a piece of steel or wood or end of a cane projected with great force. If the force is applied in a line coming from the inner side of the orbit, it is likely to be deflected slightly and pass into the temporo-maxillary fissure, and possibly down into the temporal fossa, as has occurred in my experience. If the body is projected from the outside and downward and strikes immediately with the orbital rim, it is apt to pass direct into the antrum; but if applied to the floor farther back, is apt to pass to the apex and thus into the middle fossa.

Such an accident happened in the experience of Dr. William Pepper, and resulted in death from injury to a large meningeal artery. The inner wall is the most severely exposed to traumatism, lacking the deep ridge of the supraorbital margin, which protects the superior wall, and the external angular process protecting the inner wall. Force applied here is very sure to be deflected to the apex unless the line of the projectile is almost perpendicular to the plane of the inner wall.

A study of the superior orbital wall or roof presents to us more interest than the others, as we shall see. Fracture of the roof may occur from direct force applied, as by a piece of steel or wood or point of a sword, by indirect force applied to the orbital arch at the region of the supraorbital foramen or at the external angular process, or as a result of force applied to the frontal region of the skull. A body striking the roof is almost sure to pass through into the anterior cerebral lobe, since the plate presents slight resistance, and bodies striking the roof frequently come from a plane almost perpendicular to the roof; otherwise it is possible for it to be turned into the apex. Linear fracture at that point where it bends upon itself may occur from a blow on the orbital margin. This fracture is liable to take place into the frontal sinus, as in a case in my own practice, also in a case reported by Dr. D. Hayes Agnew. The liability of the orbit to fracture from blows upon the margin is better appreciated by taking up the skull and following the superior wall of the orbit by the finger with a tape measure beneath it. It will be observed in most skulls that the roof ascends in an almost vertical plane from the margin, and when about four to six millimetres from the base of the orbital cone turns upon itself to form the roof proper. A force applied at the supra-orbital margin will concentrate itself in a horizontal line at this bend. This happened in one case with me, and by experimenting upon a number of skulls I find that fracture is liable to take place here from indirect force applied to the margin, as stated. Fracture of the roof may follow violent blows or falls upon the frontal region.

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* Read before the Minnesota State Medical Society, June 22, 1894.

Agnew states it clearly thus: "In applying physical laws to the mechanism of the skull, we have the explanation of the fact that a blow over the frontal region, should it be forcible enough to reach the base, will fracture the orbital plate or plates of the frontal."

The orbital plates seem to be the foci for this region of the skull as the petrous bones are for the middle fossæ. Thus we may observe that fracture of the roof may result, in the first place, from direct force, usually producing a "penetrating fracture"; in the second place, by indirect force applied at the base of the orbit; and lastly, by force applied to the frontal region of the skull and concentrating itself in the orbital plates as a focus. Except in penetrating wounds of the orbit, the diagnosis of fracture is often obscure, and can be more easily inferred than positively demonstrated.

If, with a history of a violent blow at the orbital base or upon the frontal region of the skull, we have added the symptoms of ecchymosis of the conjunctiva, and sometimes exophthalmos, our suspicions may have some foundation. If followed by sudden blindness, we have strong evidence of fracture of the roof passing through the optic foramen. This has been pointed out by Berlin and von Hölder, and is due to extravasation into the sheath of the nerve. This blindness is usually incurable. Similar symptoms may follow fracture of the base behind the orbit, but the symptoms are slower in making their appearance, as time is required for the blood to pass forward to the orbit.

Steelwag cautions against putting too much stress upon ecchymosis as a symptom. He says: "Some think that the blood coming from the roof of the orbit always sinks and appears under the upper half of the conjunctiva, so that from such conjunctival ecchymosis, appearing several hours after an injury to the skull, we may diagnosticate a fracture of the roof of the orbit. Careful observation and experiment upon the cadaver have not entirely confirmed this. They show that a large amount of blood must be effused and the periosteum torn for a fissure in the roof of the orbit to cause conjunctival ecchymosis."

Just how such experiments upon the cadaver could prove much I am unable to see. Any one of these symptoms, in conjunction with cerebral symptoms after severe injury in the locality of the orbit, would strengthen the diagnosis of fracture of the roof. These are the symptoms that may appear at or near the time of the fracture. In one case of mine, of fracture of the bend of the roof, there were no symptoms at the time, and it was two weeks after that a swelling was observed at the inner angle of the eye. This suppurated, and, when opened, a necrosis at the fracture was found. Cerebral symptoms may not appear until the removal of the body, and then may be followed by abscess, as in the case reported by Dr. Noyes, and also in a case which occurred in my experience as house surgeon at St. Luke's Hospital. After removal, inflammation set in and death resulted.

In "penetrating fractures" produced by a missile and with severe injury to the orbital contents or brain, diagnosis may be made by the finger passed into the wound made by the foreign body. It is possible that after withdrawal of the body the intense swelling may render the sinus so tortuous as to preclude examination even with the probe.

Fractures of the margin are usually easy of diagnosis. The site of fracture is recognized by the unevenness and sensitiveness to pressure, and in extreme cases by crepitation. Fuchs states that he has seen emphysema of the lids and orbit in such cases. If in the orbit, manifested by exophthalmos; but in this case the eye can be pushed back, while in the exophthalmos from extravasated blood this is not possible. Guthrie states that after a wound of the frontal sinus the integument of the forehead was raised up when the patient blew his nose.

These fractures often follow a fall upon the region of the orbit, or result from striking against the some flat surface, and are not usually from small bodies, such as cause fractures of the orbital wall.

In "penetrating fractures" of the orbit there is always more or less injury to the orbital contents, the globe or optic nerve usually suffering. In many cases enucleation is immediately demanded, since the tunics may be badly lacerated and the globe interfere with the removal of the body. In fractures of the margin, at the external angular process, we may have injury to the lacrymal gland, with abscess and subsequent fistula, as has happened with me.

Fractures at the inner orbit are apt to be attended with injury to the lacrymal sac.

Cerebral symptoms may occur from hæmorrhage or from inflammation. Von Hölder has shown, after a series of observations extending over forty years, that a large majority of all fractures of the base are in, or secondarily extend into, the orbital plate of the frontal. Out of one hundred and twenty-six cases of fractured skulls, eighty-six were fractures of the base, and in seventy-nine the fracture involved the roof of the orbit. He states that in sixty-three of these seventy-nine, a fracture involved the optic foramen. Out of sixty-eight cases recorded by Hewitt of fracture of the base, twenty-three involved the orbit. Von Hölder, in his investigations, stripped away the dura completely and thus detected fissures that might not have been seen through the membrane. Yet a slight fracture may separate the dura from the bone, and by a rupture of the small vessels cause a hæmorrhage.

Thus many cases of sudden blindness following a fall upon the head may be explained.

Penetrating wounds are in most cases unfortunately fatal, although we may have remarkable exceptions, for many of us have seen serious traumatism to the frontal lobe through the orbit, and with recovery.

In many cases of fracture of the orbital wall from the direct force of missiles the globe suffers entire destruction, the tunics being lacerated and the chambers filling up with blood. From such a fracture the internal carotid artery has been ruptured.

In these cases paralysis of the olfactory and oculo-motor have been noted, and loss of the visual function from extravasation I have already spoken of. From adhesive inflammation the globe may be bound down to the periosteum, as in a case spoken of by Noyes. The lids may be badly lacerated or contused; in one case of mine almost the entire lower lid was carried away by the force of the large sliver. Cellulitis may follow also. In making our judgment as to the probable result of injury to the orbital wall or margin, we must be guided by the amount of injury discernible at the time, and by a full appreciation of all the possible complications, some of which I have just enumerated. We must remember that punctured fractures of the orbital roof are particularly fatal in tendency. Out of fifty-two such injuries reported by Berlin, forty-one died and eleven recovered. Of these eleven, three were hemiplegic, one had persistent headache, and one remained an imbecile, leaving but six complete recoveries. Of the forty-four deaths, fifty per cent. resulted from the immediate effects and fifty per cent. from subsequent complications. These statistics surely point a moral to us in our prognostications. In fractures of the wall by blows on the orbital margin or other parts of the skull, we must not forget the large percentage of fractures through the optic foramen and the danger of immediate or subsequent loss of sight. The treatment of these accidents must, of course, be based on general surgical principles. If the orbital margin is fractured and a resultant fistula remains from caries and necrosis, the channel may be enlarged and the dead tissue removed. In penetrating fractures with serious injury to the orbital contents, care must be taken that all the foreign body be removed if possible.

A case has recently come to my attention where, after the removal of the globe, the operator allowed a piece of the brass which had come from the gun causing the injury to remain in the retro orbital tissue. Two years after, he presented himself at my office with severe inflammation of the orbit. After manipulating with the finger I discovered this body, which was about three quarters of an inch long and half an inch wide. This may easily be avoided by carefully examining the apex of the orbit after removal of the globe—a manipulation that should be made a routine measure in the operation of enucleation. If the brain is involved, absolute quiet and general treatment after the removal of the body are indicated. Some of these cases may get along very well until an attempt is made to remove the body. Unless such a case as has occurred in my practice—of fracture at the bend of the roof into the frontal sinus, with caries and discharge—presents itself, as a result of a blow upon the margin, we may not be able to state whether or not there has been fracture. Aran states that with violent blows or falls upon the temporo-parietal region, with symptoms of concussion, we have presumptive evidence of fracture of the base. This Ashhurst can not quite give his assent to. If this is true, however, we have the same evidence of fracture of the orbital plate after blows upon the frontal. But with severe falls upon the skull, with blindness, we have, I think, in the light of Berlin's investigations, good ground for diagnosticating fracture of the roof with extension through the optic foramen, especially so with symptoms of concussion. Treatment here is expectant.

In fractures of the roof, with caries and subsequent external swelling or abscess, a free opening, I am convinced, should be made from the start, and the sinus followed up, enlarging, if necessary, and carefully curetting the dead osseous tissue. This, of course, with clear history of traumatism at such a point as might lead us to look for fracture. Free drainage should be established and *kept up* until all doubt as to a subsequent abscess forming has left.

Wounds of the lids should be stitched with silk, or simply with adhesive strips. I shall now consider under the distinct headings spoken of the cases in my own experience and a few of other writers:

CASE I. *Fracture through the Orbital Margin.*—H. H. M., aged thirty-two years, white. The patient presented himself at my office on March 21, 1894. On February 15, 1894, he was injured by falling against a car which was in rapid motion. He struck the frontal bone, also the rim of the orbit near the fronto-malar articulation. When brought to me, his physician had succeeded in relieving him of all trouble, except a discharging sinus just below the outer canthus. A probe was passed up to the lacrymal gland, also to the seat of the fracture. Tear secretion came from the opening on the cheek and down upon the face. There had been a fracture just above the fronto-malar articulation, the upper fragment being somewhat depressed and resulting in a prominence at the outer side of the orbit. With my friend, Dr. Eitel, assisting me, the sinus was freely opened up, some dead bone removed, the wound packed with strips of iodoform gauze, and the patient recovered. The point of interest about this case, aside from the fracture, was the sinus communicating with the lacrymal glands, and the direct discharge of tears upon the cheek. No extension of this fracture into the orbital wall was found, although carefully looked for.

Berry states that fracture of the orbital margin is rare. It has sometimes produced amaurosis, and it has long puzzled every one how such blindness was brought about. It is probable that some of these cases are due to an extension of the fracture to the optic foramen. In such cases we may have complete absence of ophthalmoscopic signs until the subsequent appearance of atrophy of the nerve or pigmentation of the retina. This is the only true case of fracture of the margin without further extension I have been able to find.

CASE II. *Fractures of the Orbital Wall by Indirect Force applied to the Orbital Margin or Skull.*—J. A. L., aged forty years, white, consulted me on July 19, 1893. While passing out of a car he was thrown violently against an open door, which, by sudden stopping of the train, struck him over the supra-orbital nerve. Patient paid but little attention to it for three weeks, when a swelling at the inner canthus attracted his attention. Has now, a month and a half subsequent to the injury, an abscess at this point. Painful and tender over the supra-orbital ridge. I did not think seriously of the fracture at the time. The pus was evacuated and the wound almost closed up when a new abscess formed; this also was evacuated. The discharge persisting, and at this time thinking that I could detect necrotic bone by the probe, I placed the patient under an anæsthetic and, with the assistance of Dr. Eitel, made a free opening at the inner angle of the eye up to the roof of the orbit. Here we found, at bend of the roof, a transverse fracture about an inch long. It was undoubtedly into the frontal sinus of that side. There was noticeable displacement of the posterior fragment, which was under the anterior. Some dead bone was removed and a tube introduced. The patient went on to an uninterrupted recovery. He has remaining a loss of sensation in the skin over the region of the left orbit.

CASE III.—A case spoken of by Dr. Agnew in his *Surgery.* A sailor, who had fallen a hundred feet from the mast of a vessel, when brought to the hospital had a wound over the right malar bone. The man was unconscious and soon died. An examination showed a separation of articulation of angular process of malar with that of frontal, a fracture of orbital process of malar, and also one extending across the roof of the orbit into the frontal sinus.

Billroth reports a case of fracture of both orbitals and extending through the sella turcica, following a fall upon the head.

Guthrie thinks that the danger attendant upon injury of the frontal sinus has been greatly exaggerated, and thinks this fear vanishes in a degree when attention is paid to their structure. It is probably the most fortunate place for fracture of the orbital roof.

In this class of fractures we may or may not have attendant external injury. McLeod speaks of the case of an officer killed in the Crimean War; a round shot grazed his head as it was reflected from the scale on his shoulder. The scalp was almost uninjured, but so completely was the skull smashed that its fragments rattled within the scalp, as if loose in a bag. Over the margin of the orbit, injury to the skin would seem almost necessary in such cases, yet in the case of my own I have reported there was scarcely any swelling for two weeks, and no cut at the time, yet the force was sufficient to break the orbital plate. Neither was there any ecchymosis—in fact, no immediate sign—and it was two weeks before the first symptom appeared.

Fracture of the Orbital Wall by Direct Force or "Penetrating Fracture."—This is by far the most common form of fracture to the orbital walls.

CASE I.—D. D., aged twenty-two years, white. Saw the case July 19, 1892. Patient was working about a saw, when a loose sliver, five inches and a quarter long and an inch in diameter, struck just inside the lower orbital margin. The patient was not unconscious at the time I saw him, one hour later, and it was positively stated that he had not been so at the time of or after the injury. After the patient was anæsthetized, the large plug of wood was removed with difficulty, being so firmly wedged in. A large triangular fracture was made in the floor of the orbit, and the posterior wall of the antrum was fractured, allowing the end to project into the temporal fossa. The lower lid was badly lacerated and partly torn away. A subsequent operation was required to remove some small splinters that were impossible to find at the time. The patient recovered without complications, except a stiffness in the movements of the lower jaw, which finally disappeared.

CASE II.—Reported by Dr. Noyes. A boy, aged nineteen years, was injured by the explosion of a gun. It was not known that a foreign body had lodged until Dr. Noyes had seen him five months after. He discovered the body—a breech pin of the gun, about four inches long, which had penetrated the nasal cavity, passed through the floor and roof of the orbit, and pierced the frontal lobe of the brain. Its presence had not been indicated by any cerebral symptoms whatever. It was removed, and fourteen days after, an abscess formed. The skull was trephined and a drainage-tube passed from the trephine pole to the orbital opening to give exit to pus. The boy died thirty-nine days after its removal. This case is of interest for the length of time the body remained without symptoms and death following removal.

CASE III.—Reported by Dr. Noyes. A boy, aged fifteen years, had the roof of the orbit penetrated by a large meat hook. Recovery with loss of vision.

Finally, I may mention those cases occurring in war surgery, principally where the bullet passes through the fore part of the head, going through both orbits, and without much mischief except loss of sight.

Guthrie speaks of four such cases in which the recovery was rapid, but blindness irremediable. I have seen one such case, in which there was no symptom except loss of sight and most peculiar ophthalmoscopic pictures in both eyes.

I have merely cited a few cases, not desiring to take unnecessary time, in order to illustrate some of the points spoken of in the beginning of this article.

It has been to me a great pleasure to speak of this subject before you, and if some of my statements seem arbitrary, I shall ask you to consider that I have had no essays on this subject to guide me, and have only made such divisions as seemed to me essential in the consideration of fractures of the orbital wall.

504, 505, 506, and 507 DAYTON BUILDING.

THE HISTORY OF THE TREATMENT OF SPONDYLITIS AND SCOLIOSIS BY PARTIAL SUSPENSION AND RETENTION BY MEANS OF PLASTER-OF-PARIS BANDAGES,

*Together with the Present Status of this Plan of Treatment before the Profession of the World.**

BY LEWIS A. SAYRE, M. D.

WHEN any new mode of treatment is advanced in medicine or surgery, its advocates are apt to be overenthusiastic, and many of their readers, misled by apparent brilliancy of immediate results, often fall into extravagant praise, which further investigation leads them to modify; and, at times, discoveries which have been heralded as striking boons to humanity have afterward been so completely forgotten that subsequent investigators have supposed them original when they rediscovered them for a second time, as was so admirably shown in the historical sketch of spinal supports read before you last year by Dr. Phelps.

It is now twenty years since I first applied plaster-of-Paris jackets for the treatment of Pott's disease and lateral curvature of the spine, and when your president did me the honor to ask me to read a paper before you, it seemed to me that I could find no better way of occupying your time than by presenting for your consideration a *résumé* of the origin of the plan, and of the opinions of the medical profession of the world at large in regard to this mode of treatment after this lapse of time. That the treatment has not received universal acceptance is plain from a reading of the medical journals, though, in my opinion, the objections which have been advanced against it are, for the most part, due to a lack of comprehension on the part of the objectors of the principles which I have advocated, and their failure to properly carry out the mode of applying these principles; while, on the other hand, some of the more enthusiastic advocates of this method have gone to the other extreme, and claimed for it more than I have ever asked. As twenty years have now elapsed since I first practiced this method of treatment, it may not be without interest if I briefly review the manner in which I first came to adopt it.

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* Read before the New York Academy of Medicine, January 31, 1895.

For many years I was in the habit of treating most of my cases of Pott's disease with the "Taylor brace." I used to treat those who were too poor to pay for the instrument by applying what I called the "turtle shell" to the back.

This was made by laying the child on its belly across my lap, with the legs hanging over one side and the arms over the other, I then separating my legs so as to extend the spine and straighten it as much as possible, and until the child was perfectly easy and comfortable, which was made manifest in many cases by the *improved respiration* and the disappearance of grunting or jerking of the diaphragm.

While the child was held in this position a piece of linen or cotton cloth was accurately cut and shaped to the entire back, and two thirds around the entire trunk. In cases where the disease was in the cervical region the cloth was cut to extend to the top of the back of the head. Two or more pieces of cloth cut after the same pattern were then dipped in a mixture of plaster of Paris and water and laid smoothly over the first one. In the cases where the disease was in the cervical vertebræ, several thicknesses of this plaster bandage were put on the back of the neck, to give firm support to the head. Another piece of the cloth cut on the same pattern was then placed over the whole, and, while the spine was well stretched by separating my legs, an assistant applied a smooth roller bandage around the entire body and head, fitting it nicely into all the irregularities, and especially over the crest of the ilium, thus giving perfect support and preventing any motion of the spine.

When the plaster had become set, the child was then laid in the "turtle shell", on his back on a pillow, and the mother could sew a neat-fitting front to the sides of the plaster shell, and, lacing it in the center from pubes to sternum, make it give firm support to the spine, while at the same time it could be removed for purposes of cleanliness.

In very many cases this simple plan of giving rest to the spinal column was attended with very satisfactory results, especially where the disease was in the cervical region, in which location, if the head and neck had been well extended while the plaster bandages were applied, and retained in this position till the plaster was set, the weight of the head was removed from the neck and supported by the shoulders by the closely fitting plaster cast, and at the same time the whole spine was absolutely immovable—that is, no movements could take place between the separate bones.

In November, 1874, a little boy was brought to me having a sharp posterior curvature of the last three dorsal and the first lumbar vertebræ, and there was also partial paralysis of the rectum and one leg. As it was impossible to send the child to the hospital, as he did not live in the city, and I had no time to apply the "turtle shell," I felt compelled to devise some plan by means of which the boy could be made comfortable while being transported to his home at Chatham Four Corners, Putnam County, New York, nearly one hundred and fifty miles distant. Having studied the subject for some time, and questioned myself regarding the propriety of completely incasing the trunk with a plaster dressing, I had finally resolved to make the experiment as soon as a suitable opportunity was offered. It seemed to me that the opportunity had then come, and that the circumstances justified the measure. Accordingly, I directed one of my assistants to suspend the boy by the arms in order to see what effect would be produced, and I noticed that, as soon as the boy was made pendent, there was more motion in the paralyzed limb than before, that the girdling pain around the belly was very much relieved, and that the patient was breathing much easier. While he was suspended in this manner, I pulled down his shirt and tied it between his legs, thus making it fit the body closely and smoothly, and then took some plaster-of-Paris bandages which had been prepared in the ordinary manner to be used in the treatment of diseased ankle joints, and, commencing at the pelvis between the trochanters and the crest of the ilium, completely encircled the entire trunk to the axilla. At first I was anxious concerning the effect that would be produced upon the respiration, but, inasmuch as the boy cried lustily, all my fears in that direction were quickly dispelled, and I went on, reversed the bandage, brought it back to the pelvis, and so went on until four or five thicknesses of the roller were made to completely embrace the body. He was kept suspended by the hands of my assistant for about twenty minutes, until the plaster of Paris became hard. He was then laid upon his face on a sofa, and was to remain there until the plaster had become firmly set. I left him upon the sofa and went to my lunch, and when I returned, I found, to my complete astonishment, that the little fellow had got up and walked across the office, and was then looking out of the window. Still fearing that respiration might be interfered with too much, I cut through the dressing from the top of the sternum to the pubes, thus allowing it to gap considerably and permit of a more complete expansion of the chest. *The boy, however, did not feel as comfortable after as before the incision through the front part of the jacket was made.* I then applied a roller bandage around the pelvic portion of the jacket and again brought its edges together, but left the upper portion to separate as much as the movements of respiration seemed to require. In order to give security to the upper or thoracic portion, and at the same time to permit free expansion of the chest walls, I took the mother's elastic garter, cut it into six strips, fastened them upon each side of the slit in the jacket, and then tied them in front.

The dressing now being completed, I requested the parents to return with the child at the end of a week or ten days, when I would have a Taylor's brace ready and would adjust it. The plaster jacket had been put on simply for the purpose of rendering the child comfortable while being carried home. That was the last I saw of either the child or the parents until the following February, four months and a half, when he again returned.

In the meantime the boy had grown considerably, looked healthy, was able to walk without assistance, and was not obliged to support the upper portion of the trunk by placing his hands upon his knees. Without waiting to make any further examination, I at once took the patient in my carriage and started for my clinic at Bellevue Hospital Medical College. The streets were covered with holes and elevations formed by the ice and snow, and the jolting was almost intolerable, yet the boy made no complaint whatever. That fact of itself showed how efficient the dressing was for securing absolute rest to the diseased parts. At the college the jacket was removed in the presence of the class, when it was found that the curvature was much less, but now the boy was unable even to sit up. As soon, however, as the dressing was reapplied, the mother remarked: "He can now sit up and walk again."

This, in brief, is the history of the first case in which I applied the plaster dressing completely around the body from the pelvis to the axilla. Since that time it has constituted almost the only treatment which I have adopted for Pott's disease.

The Proper Manner of Applying Plaster-of-Paris Bandages in Spondylitis.—Crossbarred muslin or crinoline should be the material used in making the bandages. Frequently the kind of sizing used in the manufacture of this muslin prevents the plaster from setting quickly. It should therefore be washed to get rid of the superfluous sizing before being torn into strips from three to four inches in width and three yards in length. Of course the selvage is to be torn off. These strips are drawn through a tray filled with freshly ground plaster of Paris, and enough rubbed into the muslin to fill all the meshes. The bandages are then rolled moderately tight and laid in an air-tight tin until required for use.

The patient should have the body covered with a tightly fitting knitted or woven woolen shirt, without sleeves, tied tightly over the shoulders and drawn down and securely pinned over a folded towel in the perinæum. For this purpose a safety pin should always be used. If the patient is a female, pads of proper thickness should be placed over the mammæ and under the shirt, which pads are to be removed when the plaster sets, thus preventing pressure on the glands. Another towel, folded in such a shape as to cover the stomach and bowels, called the "dinner pad," which also is to be removed after the plaster sets, is placed inside the shirt, thus providing space for the expansion of the stomach during the process of digestion. If the patient has partaken of a hearty meal just previous to the application of the plaster, this dinner pad may be omitted.

The patient, being now prepared for the application of the plaster, is placed in the suspending apparatus, which has been heretofore accurately described in my several works on this subject, care being taken that the traction be evenly divided between the head and axillæ.

Traction is now made very slowly and gently, *and only carried to the point of giving the patient perfect comfort, and never beyond that point.*

In some cases the heels will be slightly raised from the floor before this point is reached, but in many instances the heels will not be raised from the floor at all; and as the sensations of the patient are the only guide as to the amount of traction needed, an anæsthetic should under no circumstances ever be given, as has been done by some surgeons, as one requires the intelligent co-operation of the patient himself in regard to the amount of traction required. If it is a child not old enough to talk and tell its feelings, watch carefully the expression of its countenance; and when it is changed from pain to pleasure, there stop, *never making traction beyond that point*, and immediately apply the plaster bandages with great care and accuracy, pressing them into all the irregularities and covering the entire trunk from the pelvis to the top of the sternum.

If the patient is kept suspended in this position till the plaster is set, it will retain the body in the position of perfect comfort which suspension has given it.

In applying the bandages, one should be placed *on end* in a basin or pail of tepid water, *deep enough to completely submerge it*, when bubbles of gas will at once begin to escape. As soon as the bubbles cease, the plaster will be all moistened and the bandage ready for use. Do not add salt to the water, as it renders the plaster brittle. Squeeze out the superfluous water before applying it, and place another roll, *end up*, in the water, which will be ready for use by the time the first one has been applied, and proceed thus until the entire jacket has been completed. The reason for placing the bandages on end in the water is that the gas may escape and thus enable all the plaster in the roll to be evenly moistened. If laid on the side, the moisture will only extend to some parts, leaving others dry and unfit for use.

The patient being suspended, the jacket is applied by the surgeon, standing or sitting at the back of the patient, while an assistant sits in front, steadying the patient by his knees and rubbing and smoothing the bandages which are being applied.

Begin at the waist, taking one or two turns around the smallest part of the body, and then going down in a spiral form, each layer overlapping the other half or two thirds of the width of the bandage until reaching the trochanters; then, having taken one or two turns around the pelvis, reverse the bandage, and gradually proceed in the same spiral manner upward until you have covered the entire body to the top of the sternum.

This process is repeated till there are a sufficient number of thicknesses to support the body, the number of bandages to accomplish this object, of course, depending on the size of the patient.

In cases where the disease is in the lower dorsal or lumbar vertebræ this is all that is required. If the disease is at the mid-dorsal or cervical vertebræ, it then becomes necessary to add the jury-mast to the jacket in order to take off the weight of the head from the vertebral column.

In many instances great advantage is derived from the addition of Whitman's shoulder brace to keep the chest well expanded, and press the shoulders back into the jacket.

In the great majority of cases the jacket can be applied while the patient is suspended vertically, with the greatest ease to himself and the surgeon; but in exceptional cases, where there is paralysis, where the heart is too weak to allow the patient to remain upright for any length of time, or in cases of excessively fat and feeble people, Davy's hammock, with holes cut to allow projection of the head and feet, is to be preferred, traction being made at both ends of the body to the point of comfort while the jacket is being applied.

Now, to pass to the subject of lateral curvature of the spine, a deformity which has nothing in common with spondylitis, except that they both affect the spine—and I might say in passing that, surprising as it may seem, there appears to be in the mind of the profession at large very often a hazy mingling of these two troubles, which bear about the same relation to each other as tumor albus and genu valgum, and, although I have written repeatedly and at length on the different modes of employing plaster of Paris in the treatment of these two affections, it seems to me, from the papers I read in the various medical journals, that a number of physicians are still under the erroneous impression that I use gymnastic exercises in cases of Pott's disease, and employ immovable plaster jackets in cases of lateral curvature. In the treatment of lateral curvature the position that I hold is, that a large number of cases if seen early may best be treated by improvement of the general tone of the system, increasing muscular strength, and educating the muscular sense of the patient to the correct carriage of the body without the aid of any mechanical support whatever. In other cases it is not sufficient to rely upon the patient alone, but recourse must be had to artificial support to hold the trunk in a correct position until the patient is capable of voluntarily maintaining it so; and in a third class, where marked deformity is present, oftentimes accompanied by great pain and disability, artificial aid is often necessary to support the body in an improved position during the entire life. One of the most useful means, in my experience, of rectifying lateral curvature of the spine has been vertical, partial self suspension accompanied by manipulation, and with me nothing has been so serviceable in holding this improved position as a corset made of flexible material applied to the body in its improved position, which, then hardening, retains this improved shape; and of the various plastic materials that I have tried, plaster of Paris has answered my purpose better than anything else. I wish to raise my voice in emphatic protest against what many gentlemen seem to regard as my method of treatment in lateral curvature—namely, placing the patient in a plaster jacket and leaving her there for a number of months, then removing the jacket and replacing it by a second. The plaster corset is simply for the purpose of holding such improvment in position as you have been able to obtain by your manipulations, and does not in any way improve the shape of the patient beyond this, and should be renewed as often as improvement in the form justifies, and worn only so long as the patient is unable voluntarily to maintain an equally good position without its aid; and during the treatment it is essential that the corset be removed while the patient exercises daily for the purpose of gaining that increased physical health and muscular tone which are necessary to the successful treatment of lateral curvature of the spine.

In applying plaster of Paris bandages in cases of lateral curvature, a shirt of double length is used, pads are placed over the mammæ, and a strip of tin two inches wide is placed next the skin from the sternum to the pubes, on which to cut off the plaster; and, instead of being suspended by the head and axillæ, the patient suspends herself by pulling on the free end of the rope which passes from the head-swing over the pulley, while she keeps the arms outstretched, the upper hand being on the concave side. As soon as the plaster is set, which should be the case by the time the corset is finished, it is split open down the front and removed while the patient is still suspended. A thin slice is then taken from each edge of the slit and the corset held together by a roller bandage and dried. When dry, the next day, it is put on the patient while again self suspended, and fastened by a roller bandage; then trimmed out under the arms and above the thighs until comfortable, and removed. The extra length of shirt is then reversed over the jacket and sewed to itself, covering in all the plaster, and lacings are sewed on in front.

Without wearying you further by speaking of my own ideas on these two subjects, I would pass to the opinions of others, as any treatment which will not stand the test of time and criticism is not worthy of acceptance.

While the first demonstrations of this method of treating Pott's disease and lateral curvature were received with marked enthusiasm in all parts of the world, wherever the demonstrations were made, it remains to be seen whether, after the lapse of twenty years, the same enthusiastic approval will be accorded to it, and I accordingly have written the following letter to some hundred of the most distinguished orthopædic surgeons in various parts of the world:

285 Fifth Avenue, New York, *November 19, 1894.*

Dear Sir: I have been invited to read a paper before the New York Academy of Medicine on January 3, 1895, on The History of the Treatment of Spondylitis and Scoliosis by Partial Suspension and Retention by Plaster-of-Paris Bandages—setting forth the present status of this form of treatment before the medical profession of the world after twenty years of experience.

Will you kindly let me have, at your earliest convenience, your views on this subject, whether for or against the plan of treatment, together with such other suggestions as you may choose to make, in order that I may embody them in my report.

Trusting that I may have the pleasure of an early reply, I am,

Yours very truly,
Lewis A. Sayre, M. D.

I have received answers from a large number of them, and have embodied extracts from them in this report. Those that are opposed to it I will read entire; of those in favor I will use only extracts.

Robert Jones, Liverpool, said: "I am not favorable to suspension in the treatment of lateral curvature, and would trust entirely to exercises, muscle-beating, and, where necessary, elevation of the heel of the boot."

E. Muirhead Little, London, says: "*In re* gypsum jackets, I have not used one for many years. I prefer poro-plastic, felt, or steel supports."

Bernard Roth, London: "I have treated with much success upward of two thousand cases of scoliosis, including many of extreme deformity, by my method of posture and exercise, without any mechanical support whatsoever, and I never found suspension of any use in *scoliosis.*

"In reference to *spinal caries*, for the first ten years of my practice as an orthopædic surgeon I applied your plaster-of-Paris bandages almost exclusively with varying success, but for the last ten years I have discarded them altogether in favor of the late H. O. Thomas's spinal splint with axillo-spinal straps. I have modified this splint, so that the patient's back can be uncovered for examination and the instrument replaced and refixed while the patient is lying prone the whole time."

Noble Smith, London: "Probably the most fallacious form of treatment is that of applying plaster-of-Paris jackets. Among the many enthusiastic surgeons who at first made use of them, there are very few having had much experience who have not now given them up as a failure. Plaster-of-Paris jackets ought to be utterly condemned, because, first, of their great weight; second, their interference with free respiration and cleanliness; and third, the fact that they act simply as heavy, unscientific corsets, pressing upon the chest, and add very little to the support of the spine."

B. E. McKenzie, Toronto: "With the exact manner of treatment referred to I have had but little experience. For several years I have employed some form of gymnastic treatment associated with the employment of forceful correction through suspension, with lateral traction, manipulation of the spine, etc. The objection which presents itself to me in the use of any retentive appliance is that it tends to atrophy and to produce weakness of the trunk instead of aiding in the development and strengthening of the parts."

H. Hodgen, of St. Louis, does not think he has ever seen a very good result in scoliosis from the use of the jacket, and prefers the steel assistant.

John Ridlon, Chicago: "I have used the permanent plaster-of-Paris jacket in spondylitis from time to time during the last twelve years, applied as you directed, with the patient partially suspended, when I have been unable for any reason to obtain an antero-posterior steel spine brace of the Taylor pattern. I have also used the plaster jacket in certain cases of spondylitis where the lateral deformity was so great that the steel brace could not be satisfactorily adjusted. In all those cases where the jacket has been used for the posterior curvature simply I have not been able to prevent an increase of the deformity, and in all those cases that have come under my observation after having been treated by other surgeons I have been given a history of steadily progressive increase of the deformity. . . . In those cases, however, where there has been marked lateral deformity I have found the deformity progressively diminish under treatment by the plaster jacket; but in these cases I have not continued the treatment with the jacket after the lateral deformity had disappeared and with the posterior curvature increased to any considerable extent.

"In scoliosis it has been my custom for the past two or three years to use the laced plaster jacket in all cases except the very slight ones. I use it in connection with partial suspension and pressure by the squeezing machine, and I am satisfied that I have obtained a much greater degree of correction of the deformity than I had been accustomed to obtain either with exercises alone, after Roth's method, or with the use of the leverage lateral brace formerly applied, and perhaps still used, by Dr. Shaffer of your city. Under treatment by Dr. Shaffer's brace I used to find nearly all my cases grow somewhat more deformed. None of them made any material gain, although treated for long periods. Under the exercise treatment of Roth very slight cases at times fully recovered; moderately severe cases gained somewhat, and rarely ever grew worse; in severe cases the deformity did not in any way diminish, and some few did not appear to receive any benefit whatever. At this time I am satisfied that the plaster corset used in connection with the squeezing machine and exercises gives in my hands the best result in the treatment of scoliosis."

James K. Young, Philadelphia: "In answer to your favor of November 28th, asking for my views upon 'The Treatment of Spondylitis and Scoliosis by Partial Suspension and Retention by Plaster-of-Paris Bandages,' I can best answer by quoting from my recent work, *Treatise on Orthopædic Surgery*, 1894, under the treatment of these two subjects:

"*Spondylitis.*—After describing the technique now employed, I say: 'While possessing certain advantages of economy, requiring less special experience in its application, and being entirely beyond the control of the patient or attendants, there are certain positive disadvantages—the encircling of the body within a solid support, the inability to inspect the condition of the skin and note the progress of the affection, the formation of excoriations, ulcerations, and abscesses without the knowledge of the surgeon, the lack of cleanliness, etc.—which relegate it and its modifications to a secondary position. When split, furnished with lacings, and applied and removed at will, it loses part of its efficiency, but there is a gain in comfort and cleanliness. It is of decided value, however, for patients who are unable to bear the expense of even the cheapest apparatus; in such cases, with attention to detail, a cure may often be effected, and the writer has in public practice frequently proved this statement, especially when the disease was located in the lumbar region.

"'In justice to this mode of treatment it must be added that there are certain cases in which it is the best and most efficient; this applies particularly to the lateral deviation of the spinal column present in certain cases of Pott's disease and in lower lumbar disease. It is, moreover, important that the surgeon be familiar with both the plaster-of-Paris jacket and the spine brace, adapting each to the special requirements of the individual case.' Individual experience leads me to employ the steel spine brace wherever it can be carefully adjusted at short intervals under personal supervision.

"*Scoliosis.*—I believe in and employ partial suspension, but do not now employ plaster-of-Paris jackets in the treatment of scoliosis. I prefer to treat these cases early by mild, long-continued movements, exercises, posture, and massage—methods by which I have achieved the greatest success."

Thomas G. Morton, Philadelphia: "In private practice I do not use the plaster apparatus you refer to, but at the Orthopædic Hospital we now and then resort to it when the patient is unable to procure the Lentz spinal apparatus which we commonly use."

Joel E. Goldthwait, Boston: "I would say that for routine treatment I use a form of back brace, practically the Taylor, reserving the suspension and jackets (plaster) for those cases which the brace fails to hold, or in which there is lateral deformity.

"In these cases, if ambulatory treatment is desired, I think the jacket is by all odds the best form of treatment."

Charles L. Scudder, Boston: "I have nothing novel or new to add to the common experience of surgeons with this form of retentive apparatus. I would say simply that in cases of caries of the spine below the tenth dorsal vertebra in which for some reason or other it may be undesirable to use steel braces, I find the plaster-of-Paris jacket, applied well over the hips and up to the axilla, efficient.

"In the application of this plaster dressing I am inclined to use more and more the hammock as a means of extension rather than the tripod and sling."

Robert W. Lovett, Boston: "I have used in the treatment of lateral curvature the plaster jacket, I think in all its forms, and with certain modifications I still continue to use it. Believing as I do very firmly in gymnastic treatment as an essential part of the treatment, I have abandoned the use of the fixed jacket except in unusual cases, where I apply it to a patient who is forcibly corrected, leaving it on only for a short time. This measure I have found of use in some of the very severe cases. It is applied under suspension.

"A method which I have used extensively has been to apply a jacket to the patient while suspended, cut the jacket off down the front, and fill it with plaster, thus obtaining a cast of the body; then, by the method described by Dr. Bartow, of Buffalo, I remove the prominence on the convex side of the cast, building it up on the opposite side; in some cases overcorrecting the deformity, in other cases bringing them nearly to the straight line. To this cast I apply a jacket over an under vest, cutting it down the front and having it provided with lacings. This I have been accustomed to use in connection with gymnastics and forcible correction. It represents the patient's condition as it would be if a decided improvement had taken place, of course. I am a believer in the efficiency of this 'corrected' jacket.

"I have also used braces to accomplish the same purpose. I can not account myself an advocate of the jacket to the exclusion of the brace, and I use sometimes one and sometimes the other. In milder cases I depend for the most part on gymnastic treatment. I trust I have answered your inquiries."

133 Newbury Street, Boston, *December 10, 1894.*

My dear Dr. Sayre: In reply to your communication, let me say that I find the treatment of Pott's disease by partial suspension and retention by plaster-of-Paris bandages in a large number of cases of caries of the spine to be most beneficial. It is particularly adaptable for cases of disease below the seventh dorsal. In the convalescent stage I use removable jackets—either plaster, leather, paper, or aluminum removable corsets—where these are within the means of the patient. In a number of cases, however, I make use of braces. These are largely in the cases that are in the upper portion of the spine and where careful nursing can be given. In such cases, where thorough nursing can be given, I am in the habit of making an antero-posterior support. In certain acute cases a fixed plaster jacket seems to give a more thorough support than the brace as ordinarily applied. It has seemed to me that an antero-posterior support could be made to hold as well as a plaster jacket even in the portion of the spine to which the plaster jackets are most suitable, but practically, in the majority of cases of the acute sort, certainly in poorer practice, a plaster jacket will be found the readiest and most efficient. In lateral curvature I am also using plaster-of-Paris jackets with partial suspension, but I have combined with it also a later traction and direct pressure. Here, again, I am in the habit of using substitutes for plaster jackets—namely, leather, paper, and aluminum.

With sincere regards, E. H. Bradford.

Henry O. Marcy, Boston: "I thank you for calling my attention to the paper which you have in preparation. I am sure that I can add very little of value upon the subject, since from the first I have considered you my master, and take pleasure in writing you the reasons which caused me to first seek your acquaintance. The first article which you published upon the treatment of angular curvature of the spine by means of suspension and the application of the plaster jacket impressed me so favorably that after its careful study I went to New York for the sole purpose of seeking your instruction, and, thanks to your courtesy, I did not return until I had familiarized myself with every detail.

"It is very probable that I was the more favorably impressed with your method, since for some years I had used plaster bandages for almost every variety of fracture. . . . Another case which I cited, of a woman confined to the bed because of a dorsal curve, at once commenced her work after the application of the jacket, at which time she was three months pregnant. She refused to part with her jacket or have it replaced by another, chipping away in front as the enlarging abdomen demanded, until her labor commenced. No other jacket was applied, and somewhat recently I had the good fortune of examining her, all these years the resulting cure having remained complete with only a slight deformity. As you are well aware, procedures emanating from any other source have been accepted by the Boston profession only after repeated proofs of real merit. To this conservatism your teaching proved no exception. I was not alone the first to introduce plastic splints to the profession of Boston, but also your methods of the application of the plaster jacket, and unweariedly wrote and talked upon the subject. Much excellent work has been done here for a good many years, especially at the Children's Hospital, but unfortunately the general profession are still wanting in technique and training. I inclose you a reprint of 1877 upon Plastic Splints in Surgery, and call your attention to its closing sentences. What I then said I now repeat, but more than all as the outcome of your teaching upon this subject do I prize a personal friendship."

Albany, N. Y., *December 14, 1894.*

Lewis A. Sayre, M. D., New York City:

My dear Doctor: In reply to your letter of November 19th, I am reminded largely of the early history of your work in the treatment of spondylitis and scoliosis when first presenting the subject to the attention of the New York State Medical Society. You will remember that I was the first who presented a case—that of Miss M.—for your treatment, application of the bandages, etc., and the result was quite decidedly satisfactory. While for the past five years my line of practice has been away from orthopædic surgery, yet my impressions, in answer to your questions, would be that my results in the treatment of angular curvatures of the spine have been decidedly satisfactory. In the treatment of lateral curvature I can not speak so emphatically. For angular curvature I applied the first plaster-of-Paris dressing put on in this city, after having read a report of one of your clinical lectures at Bellevue Hospital on the subject. I applied the *bandages directly* to the surface of the body, and had the pleasure of seeing the little patient do remarkably well.

Hoping these few stray notes will be of service to you, and that you will pardon my delay in answering, believe me,

Sincerely yours, A. Vander Veer.

Lewis Balch, Albany: "I have not applied a plaster jacket for six or eight years. From the time you put on one before the State Medical Society, in the winter of 1878—I think that was the date—up to 1886, I used the jacket for all cases of spinal curvature coming under my charge. In general I can say the treatment was successful, but I noticed in some cases of rotary lateral curvature the patient seemed to slip down through the jacket, no matter how carefully it was applied, and the treatment failed. Eventually I had better success in antero-posterior curvature than in the other.

"I know the jackets were properly applied, for you taught me how to put them on both here and in your own office."

M. H. Burton, Troy: "I have used the Sayre jacket in treating cases of spondylitis and scoliosis in the Troy Hospital and in private practice with decided and manifest success. I have witnessed its use in Marshall's Infirmary, Troy, N. Y., and the results were not gratifying. I have seen cases also which had been treated by yourself, and found complete recovery the result. It would not be within my province to suggest to you in regard to the Sayre jacket or the counterpart appliances.

"Your experience and knowledge in the matter preclude such suggestions, if I had any to make—which I have *not*. As compared with other jackets or appliances, I find no single point in their favor, so far as experience and observation give me knowledge.

"In all respects I find the Sayre plaster-of-Paris appliances or jackets the most efficacious, convenient, and valuable, and the ones causing the greatest success in the treatment of the diseases for which we apply them."

R. B. Bontecou, Troy: "Your letter of November 19th was duly received, and I have nothing more to state than what the profession at large have stated and will state in admiration of your device to accomplish physiological rest by fixation, which I believe is the great principle to observe in the treatment of disease of the spinal column and the greater joints. I have relieved and cured a multitude of suffering humanity by your method, both in hospital and private practice—adults as well as children. Of late years I have substituted water glass of heavy specific gravity for the plaster, finding it equally resistant and durable, and lighter, and can be cut open when necessary and used as a corset more readily than plaster.

"I have also, in children with posterior spinal deformity, often substituted the prone position in a hammock of cotton flannel, with advantage, utilizing the hammock as one of the envelopes. It is certainly more comfortable for children than the vertical position."

Ansel G. Cook, Hartford: "About eighty per cent. of my cases of spondylitis wear solid plaster-of-Paris jackets, with or without the jury-mast; about fifteen per cent., plaster or leather corsets made to lace in the front; and about five per cent., for various reasons (position of abscesses, imperfect development of hips, complications of other joints, etc.), wear various forms of braces. This does not include the very severe cases that are confined on wire or plaster and board cuirasses, or a class of cured or convalescent adults whose backs are not strong and who require some support. These do best, I find, with a light back brace, padded the whole length of the brace, worn under an ordinary pair of corsets.

"The mild cases of scoliosis I treat with exercises alone; the more severe, with exercises supplemented with braces that do not hold, but compel the patient to hold himself, in a corrected position (you will note the distinction); and the most severe, with plaster-of-Paris or leather corsets. I hope your paper will touch on the subject of suspension, forcible correction and retention, which has so many enthusiastic advocates at present.

"A great deal of trouble, I think, arises from improperly made and badly fitting jackets; it certainly requires considerable practice to make a good one, and when a man condemns plaster jackets you are inclined to agree with him when you see the thing he has made and calls a jacket. On the other hand, the man who sends his patient to an instrument-maker to have a brace fitted, without giving accurate directions as to how the brace shall be made, and attending personally to the fitting of it, is not likely to get any satisfactory result."

BUFFALO, *December 5, 1894.*

Dr. Lewis A. Sayre:

MY DEAR DOCTOR: In reply to your favor of November 19th, asking my views in the matter of the treatment of spondylitis and scoliosis by plaster-of-Paris bandages, I would say about as follows: First of all, I would wish to acknowledge the benefits which I, like all other surgeons, have received from the views upon treatment which you have published so widely and with which your name is so inseparably connected.

So far as the treatment of acute spondylitis is concerned, and at that time when absolute fixation is so absolutely necessary, I must say that I know of nothing that can take the place of a plaster-of-Paris corset. With regard to the later treatment at a time when plaster has become irksome, or when the acute stage is past and the patient's personal comfort can be more consulted, I must say that, for my own part, I think that other mechanical devices can be substituted which permit of sufficiently frequent removal to keep the patient more comfortable. I do think that braces or jackets of various kinds can be devised that give sufficiently complete fixation to meet the indications, and that are much more agreeable for the patients. But, in the early and very acute stages, and in a certain class of hospital and dispensary patients, I think that plaster or its equivalent, yet to be discovered, more completely fills the indications than anything else.

With regard to scoliosis, it is not my own personal custom to resort much to plaster jackets, except as I may put one on in order to obtain a cast of the body around which to construct a suitable brace. I think these cases are more often injured by too long rest of the muscles, and for all except the inveterate cases I much prefer a movable corset which will permit massage or very much more active muscle training. The more I study and have to do with lateral curvature, especially in the young and growing, the more I believe in the expediency of gymnastic treatment, and the less absolute reliance I like to place upon support. I may sum it all up by saying that in my estimation a happy combination of the two constitutes the best treatment.

I appreciate your request for my own views, which I advance with no little hesitation to such an authority as yourself, and am, very sincerely yours, ROSWELL PARK.

KANSAS CITY, MO., *December 4, 1894.*

Dr. Lewis A. Sayre, 285 Fifth Avenue, New York:

MY DEAR DOCTOR: Yours of the 19th just to hand, and I would say in reply that in spondylitis of the upper dorsal and cervical region I have used with good results and advocate recumbency. Where the disease is manifest below this part, I use suspension and retention by plaster-of Paris bandages—fixed dressing if the trouble is active, and movable apparatus or laced plaster-of-Paris dressing if angular curvature has taken place. In scoliosis I find the suspension and retention by the plaster-of-Paris bandages, cutting down and lacing, my best method.

Your friend, J. D. GRIFFITH.

MINNEAPOLIS, *December 3, 1894.*

DEAR DR. SAYRE: In reply to your kind letter, would say in the majority of cases of spondylitis I use partial suspension and retention by plaster of Paris, and when I do use a steel support it is usually to cater to the prejudice of my patient, for *since I have known how to apply the jacket properly* I have been able to do more good to a greater number with it than with any other means at my command.

For the past two years in treating scoliosis I have abandoned braces and supports of every kind, and I believe with advantage to my patients, except in cases in which the deformity is increasing *very fast*, and then I apply a plaster jacket until I have had time to build my patient up and get her able to stand alone as it were. Fraternally, J. E. MOORE.

Hunter McGuire, Richmond, Va.: "Your letter of November 19th has been received. In the treatment of spondylitis nothing, in my opinion, is better than partial suspension and retention by plaster-of-Paris bandages. Having a son with this disease, there is nothing in medical literature on this subject that I have not studied. I have practiced several other devices, but have never found anything equal to the plaster-of Paris bandages. When I use them in scoliosis, however, I always arrange them so they can be removed, and endeavor to strengthen the muscles by massage, electricity, and gymnastics."

116 SOUTH EIGHTEENTH STREET,
PHILADELPHIA, *November 28, 1894.*

MY DEAR DR. SAYRE: In all cases of spondylitis in the early stages, where the patient is not confined to bed, I use plaster-of-Paris bandages, as suggested by you. Later, in private practice, I use some form of steel supporting apparatus. In my hospital work and among the poor I usually employ plaster-of-Paris jackets from the beginning to the end of the treatment of the case, and at all times when the cost must be considered.

In scoliosis I use the plaster-of-Paris jacket, which is reapplied at short intervals, to support the spine and overcome the deformity, believing that we can accomplish better results in this way than by more expensive and cumbersome apparatus.

When the curvature has been overcome I apply some form of light supporting apparatus. Of course in scoliosis I do not neglect to use stretching and pressure, with gymnastic exercises, to increase the flexibility of the spine.

I shall be glad to give you more details if this short account is not sufficient. Believe me, very truly yours,
WILLIAM J. TAYLOR, M. D.

November 28, 1894.

Dr. Lewis A. Sayre, 285 Fifth Avenue, New York:

DEAR DR. SAYRE: In reply to your note of the 19th I would most gladly say that the profession owes much to you for developing the use of plaster of Paris as a surgical dressing in a great variety of cases and conditions. In regard to its use in spondylitis, it has been a Godsend to hundreds of poor people who would otherwise have been without this most economical and effective method of fixing the spinal column until repair takes place. I know of no method so convenient for producing absolute fixation of the bones of the spinal column. It certainly has its disadvantages; but your work in this line has stimulated efforts at substitution which have obviated its disagreeable features. The great principle underlying the treatment, however, that of rest and fixation, has steadily and persistently taken firm hold upon the profession at large. While method and means may change, the principle will live.

In regard to self-suspension for scoliosis, it is one of the helpful means of rectification, and I value it highly. I am opposed to apparatus for scoliosis, both on theoretical and practical grounds, whenever it can be avoided. I believe in strengthening the muscular power by active and passive gymnastic movements, as I consider them the essential elements in effecting a cure. At the same time I do not deny that there are cases rapidly growing worse which require permanent support.

When plaster of Paris is used in these cases it should, in my judgment, be employed as a corrective agency, with constantly increasing pressure upon the projecting portions of the body, as advocated by yourself and by the plan of Bartow. Thanking you again for the earnestness with which you have pursued this branch of surgical work, I am

Yours very sincerely, DE FOREST WILLARD.

John Chalmers De Costa, Philadelphia: "The custom in the Philadelphia institutions with which I am connected is to treat acute and early spondylitis by means of rest in bed, and to rely entirely upon plaster of Paris, applied during suspension by your method, for the completion of all cases and the cure of patients."

1611 SPRUCE STREET, PHILADELPHIA, *November 30, 1894.*

MY DEAR DR. SAYRE: I am in receipt of your letter of November 19th. I am very strongly in favor of the plan of treatment by plaster of Paris, applied during partial suspension, in cases of spondylitis below the mid-dorsal region, also as a means of holding a jury-mast in cases above mid-dorsal region. I am strongly opposed to the use of plaster of Paris applied in any position for scoliosis where it is allowed to remain for more than one week's time, because it tends to increase the muscular atrophy from disuse. I believe that it would interfere with the object of your paper did I do more than briefly state my views as above. I can but believe that the mechanical advantages of plaster of Paris have been seriously interfered with by the injudicious employment of it in unsuitable cases and in an unmechanical manner. It has often appeared to me that plaster of Paris was applied apparently with the idea that it acted as a therapeutic measure by absorption in some such way as many of the nostrums are supposed to act. It is only in this way that I have been able to explain the irrational manner of its application. I remember saying in one of my clinical lectures that it seemed a great misfortune that Professor L. A. Sayre could not communicate his skill in selecting the cases suitable for the method as well as his skill in applying plaster of Paris, to prevent the terrible abuse to which it has been subjected.

Yours most sincerely, H. AUGUSTUS WILSON.

B. Merrill Ricketts, Cincinnati: "In reply to your request for my opinion concerning the treatment of spondylitis and scoliosis by partial suspension and retention by plaster-of-Paris bandages, I will say that this method is, I believe, the best thus far presented when applied with skillful hands.

"*Its advantages.*	*Disadvantages.*
1. Non-elasticity.	1. Uncleanliness.
2. Perfect adjustment.	2. Excessive weight.
3. Inexpensiveness.	3. Liability to fracture.
4. Convenience.	4. Irritation by small particles of plaster.
5. Rapidity.	5. Absorption of secretions.
6. Frequent reapplication.	
7. Continuous adjustment.	

"To overcome the disadvantages, I have, as a rule, used the leather jacket supported by steel made from the original plaster cast. The leather jacket does not meet as many requirements as the plaster, but, until some of the disadvantages of the plaster are overcome, I believe it will be necessary to use the leather, believing that it excels the other substances, such as metal, wood, paper in any form, or any of the various apparatuses."

Edmund Andrews, Chicago: "The plan is a valuable one in many varieties of cases. One of the important advantages in the West is that family physicians in distant mountain and prairie regions, far away from instrument-makers, can always make use of it.

"Another advantage is that by its use the remote physician protects his patient from getting useless and injurious braces made by city instrument houses from inadequate measurements sent by mail.

"The practical difficulty as to its use by distant country practitioners is the tendency of some of them to leave it on without change so long that the skin becomes foul and offensive, and their neglect to guard the prominences of bone, thus producing ulcers by the pressure.

"As the patient may be ten or fifteen miles distant over bad roads, they think they can not go to him very often.

"It is a serious question for a far-off country doctor as to what he can do for a distant spinal case having scanty pecuniary means. My extensive correspondence with these people has impressed me strongly with their difficulties. I use the plaster jacket frequently, but in many other cases I prefer apparatus of other material."

W. R. Whitehead, Denver: "I recently received your letter about spondylitis, and hasten to reply at my earliest convenience. I wish that I could add something really valuable and interesting to what I have already expressed concerning your treatment of this disease. I am sure, my dear doctor, that no one appreciates your efforts in this matter better than those who have profited, as I have, by your instruction in the application of this the most valuable means of treatment, in my opinion, of Pott's disease of the spine, which is one of the most troublesome surgical affections with which we have to contend.

"I am opposed to all stiff braces as inefficient, painful to the patient, and often a most useless expense. The trouble is, generally, that the Sayre jacket is not properly applied; it is almost always, in my experience, too heavy, or the plaster is of poor quality; sometimes the piano-felt pieces about the hips are omitted, or there is something about the jacket that shows inefficiency in its application, or a want of proper knowledge of or proper appreciation of the purposes for which it is applied, as simple as they are. These things are not the fault of the Sayre jacket, but the fault of those who sometimes attempt to avail themselves of this excellent device—indeed, the fault of the *medicus imperatus* with which this country is abundantly supplied. Take, for example, an intelligent country doctor, far removed from all the conveniences of a city, and if he understands how to apply your jacket properly, and has any ingenuity at all and a little *good* plaster of Paris, he can, in my humble opinion, make for his patient a better and more comfortable and more useful appliance for the treatment of spondylitis than all the nickel-plated steel braces and other spinal 'contraptions' offered for sale and advocated by instrument-makers and recommended by their inventors."

"P. S.—Some doctors, it seems, are invited to send east a mold of the bust in plaster, and a jacket will be furnished shaped after such a mold. My comments are that a doctor who has not experience and sense enough to make a suitable jacket can not make a good mold."

(*To be concluded.*)

COMPLICATED HERNIÆ.*

By SAMUEL E. MILLIKEN, M. D.,

ATTENDING SURGEON TO THE RANDALL'S ISLAND HOSPITALS.

WHILE strangulation is the gravest complication which takes place in hernia, it is of the less alarming but very important ones with which I shall deal—viz., adhesion, undescended testis, and hydrocele of the cord.

Adherent hernia is, in my opinion, much more frequent than is generally supposed, as very limited attention is paid to the mechanical treatment of this class of surgery by the general practitioner, but is left to the care of instrument-makers or the patient himself. Another reason for the non-detection of such a condition is the absence of any acute symptoms, as only in rare instances does anything else than omentum become adherent. This, however, is very frequent and should be detected early.

It may seem a strong assertion, but I am convinced that this unfortunate state of affairs is often brought about by the application of a truss without having fully reduced the hernia, thus rather encouraging the adhesion. When the hernia is intestinal there is little danger of such a mistake, unless it be the cæcum, as the pain induced will cause the patient to remove the apparatus. One case which came under my observation, that of a child less than two years of age, on whom I refused to apply a truss, subsequently went to one of the large instrument houses of New York and was fitted with one. On the operating table it was found that the greater part of the cæcum was adherent, which no doubt was made worse by the truss. Had any other part of the intestinal tract been subjected to such pressure, strangulation would no doubt have occurred.

The following case illustrates the endurance of omentum to truss pressure without strangulation:

Mr. U., aged forty-five years, hotel clerk, came to me April 18, 1892, giving a history of having worn a same side truss for five years, but the hernia had never been retained for more than a week at any time. On examination, with the patient in the upright position, there protruded a left oblique inguinal hernia half the size of the fist. It was largely intestinal, and when he assumed the recumbent posture all could be reduced except a piece of omentum about the size of the end of the thumb. By considerable pressure even the omentum could be forced into the inguinal canal, but it would immediately reappear when the hand was taken off. The adhesion of the omentum to the sac could be demonstrated by first reducing it into the canal and retaining it there with one hand, while traction was made on the cord with the other, which caused the hernia to reappear. Although the condition was explained to the patient and operation advised, he declined to undergo the same. A "complete band truss with shank" (see *New York Medical Journal*, November 7, 1889), such as I presented to the New York State Medical Association, September, 1889, was applied with the hope of retaining the intestinal part of the hernia without attempting to hold the adherent omentum. The patient has now been under observation for over two years and, although he is very stout, the truss has been worn with comfort and no further changes have taken place in the adherent omentum.

The following case, referred to me by Dr. L. C. Jones, of this city, illustrates how small an omental adhesion may exist and yet greatly interfere with the mechanical treatment:

Mr. J., aged twenty-six years, came to me October 19, 1894, giving a history of hernia during childhood, but he had not worn a truss until a few weeks before I saw him. During the past summer he went before the New York City Civil Service Board, when he was rejected for hernia.

Mechanical treatment proving unsatisfactory, he decided to try the "radical cure." On examination, the right side of the scrotum was found to be about a third larger than the left, and the cord structures, as they passed over the ramus of the pubis, were three times the size of the unaffected side. The appreciably nodular character of the scrotal contents led me to diagnosticate an omental hernia. With the patient prone the hernia was reduced, but with difficulty, and the testis was at the same time drawn up almost to the external ring. By making traction on the cord the hernia could be reproduced.

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* Read before the Alumni Association of the Northern Dispensary, November 21, 1894.

It being clear that an adhesion existed, I operated October 24th, and found only one small fragment of omentum grown fast to the most dependent part of the sac. This was tied off with catgut and the rest of the omentum returned to the abdomen. Another complication in this case which was met with was a very narrow constriction of the sac at the site of the internal ring, which was divided before attempting to reduce the omentum and accounted for the force which was required to accomplish partial reduction before the operation.

This marked fibrous constriction was met once before in a case of adherent omental hernia which had become complicated by strangulation of a loop of small intestine. In both of these cases the reconstruction of the canal was performed after the method of Bassini, which gives the surgeon abundant opportunity of inspecting the condition of the internal ring before opening the sac or attempting to return the hernial contents.

Undescended testis, while not so common as adherent omentum, rarely exists long without being followed by hernia. The mechanical treatment is rarely satisfactory unless the testis has descended below the external abdominal ring. When in the canal, the pressure required to retain the hernia will often not only produce great pain but prevent the natural descent of the organ.

I have operated on two cases with this complication by dividing the adhesions to the cord structures well up to the internal ring, so as to allow the testis being brought down and then anchored to the scrotum by catgut sutures through the tunica vaginalis. The canal was built up after the method of Bassini. By making the external ring small the testis can not get back into the canal, and it will soon adapt itself to the new position.

Encysted Hydrocele of the Cord.—Hydrocele of the cord is more frequently mistaken for hernia than any other condition. It does occasionally occur simultaneously with hernia, and when so should be recognized and differentiated. When small it can be reduced into the canal, but by traction on the cord the characteristic, uniform cyst can be reproduced. The freedom from pain and the firmness of the swelling should cause it to be easily distinguished from hernia. Aspiration and the injection with a few drops of carbolic acid will usually accomplish a cure, and then the treatment of the hernia can be carried out.

Conclusions.—1. Besides becoming strangulated, hernia may be complicated by adhesions, undescended testis, and hydrocele of the cord.

2. Omentum often becomes adherent without causing any alarming symptoms, and is the greatest obstacle in the way of successful mechanical treatment.

3. The cæcum may take on adhesions under an ill-fitting truss and yet not become strangulated.

4. Undescended testis rarely exists alone and is usually complicated with hernia.

5. Encysted hydrocele of the cord, while often mistaken for hernia, may be only a complication.

36 West Fifty-ninth Street.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, MARCH 16, 1895.

THE INDUCTION OF "ASEPTIC CELLULITIS" AS A THERAPEUTIC MEASURE.

We have received, presumably from the author, Mr. E. Hurry Fenwick, of London, a reprint of a noteworthy article that appeared in the January number of the *Clinical Journal*, entitled A Clinical Lecture on the Value of Exciting Aseptic Cellulitis in the Treatment of Obstinate Inflammatory Affections of the Urinary Organs. Mr. Fenwick believes that there are many chronic or obstinate inflammatory conditions of the solid viscera which may be materially benefited by cutting on to them through the parietes of the body, by exciting "suppuration of a benign type in the cellular tissue of their immediate neighborhood," and by draining off the products of inflammation through the vessels of this layer. He has been accustomed to term this method of dealing with chronic visceral inflammation "*aseptic counter-irritation*," and he thinks it is nothing more or less than a more accurate and more energetic method of applying the seton, blister, or iodine paint of old-fashioned medicine. He submits that the surgery of the present day can advantageously substitute for such surface applications the more powerful and effective counter-irritation of an inflamed and drained cellular tissue.

Mr. Fenwick's attention was first drawn to the matter, he says, in 1887, when he was suddenly called upon to treat a patient supposed to be suffering from rupture of the bladder. He had much dullness above the pubes, though the bladder was empty, and a great swelling was detected in the recto-vesical pouch. On laying open the cavity of Retzius by a suprapubic incision, Mr. Fenwick found the trouble merely an acute interstitial or parenchymatous cystitis which subsequently proved to be due to Bilharzial disease. In a few days the enormous swelling which had previously existed in the neighborhood of the bladder disappeared, and it struck Mr. Fenwick that this unlooked-for result was probably due to drainage of the inflammatory products through the suprapubic incision. Since then he has gradually collected some pathological as well as clinical material which convinces him that inflamed cellular tissue exercises a considerable detergent effect upon any solid viscera with which it is in contact, and that these powers have either been overlooked or not thoroughly appreciated by the profession. The pathological effects of suppuration or extravasation of blood into the cellular tissue in the neighborhood of solid viscera upon the health of the organ are, he says, well exemplified in the kidney. The effects of large collections of pus or of blood upon the plumpness of the kidney can be demonstrated either on operation or post mortem, he adds.

Mr. Fenwick gives notes of a case in which an enormous subperitoneal hæmorrhage around the kidney produced atrophy of that organ, and mentions various other cases showing the beneficial effects of incision and drainage of the cellular tissue in the immediate neighborhood of the kidney, the bladder, or the prostate. He adds that he has encountered equally satisfactory cases in general surgery, especially in the surgery of the liver. He suggests that in obstinate inflammatory conditions of the urinary organs of a subacute type, which have resisted ordinary methods of treatment, an incision be made over the offending viscus, the cellular tissue in its immediate neighborhood freely opened with a carefully aseptized finger, and the wound subsequently drained for a week or a fortnight.

While there is practically no danger attendant upon such a procedure properly carried out, it is difficult, as Mr. Fenwick says, to conceive anything more detrimental than a cellulitis set up by a slovenly, septic surgeon; and it is not easy, he adds, to realize the damage which may be caused by a surgeon "breaking into a tubercular or carcinomatous deposit and permitting the infecting contents to spread themselves over the area which has been laid open merely for drainage."

PROPRIETARY MEDICINES AND LEGISLATION.

No doubt something ought to be done by the various State legislatures in the way of regulating the sale of proprietary preparations, and indeed of prohibiting that of some of them, but it is quite obvious that legislation in this direction should not be too arbitrary. If we are correctly informed as to the character of pending legislation in the State of New York, there is danger of its erring in this direction. Among the provisions of the bill "to confer upon the State board of health power to analyze and examine drugs or medicines known as patent or proprietary medicines, and regulating the sale thereof," is one to the effect that no proprietary medicines can be sold after the bill goes into effect, which it does immediately on passing the Legislature and receiving the Governor's signature, until they have been analyzed and passed upon by the board of health. A serious interruption of legitimate trade can hardly fail to be the result of enforcing this provision.

Another objectionable feature of the bill is that there is no appeal allowed from the board's decision. Deservedly as the board is trusted by the medical profession, neither it nor any other body of men should, in our opinion, be clothed with such arbitrary power. The bill ought to be modified, we think, before it is given the force of law.

MINOR PARAGRAPHS.

THE *ANNALES D'OCULISTIQUE* IN ENGLISH.

The first number of the American edition of this old and valued journal of ophthalmology has recently reached us. It is the issue for January, 1895, edited by Dr. George T. Stevens and published in New York. Its outward appearance is quite that of the French edition.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 12, 1895:

DISEASES.	Week ending Mar. 5.		Week ending Mar. 12.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	3	0	9	1
Scarlet fever	121	25	125	14
Cerebro-spinal meningitis	1	0	2	2
Measles	150	10	164	12
Diphtheria	197	37	207	23
Small-pox	0	0	2	0
Tuberculosis	88	128	129	118

The Relation of the Medical Profession to Temperance Legislation was the title of a paper read by the Hon. Austin Abbott before the Society of Medical Jurisprudence on Monday evening, the 11th inst. The author discussed several propositions which were original with him and of interest, he said, to the public as well as to the two professions of law and medicine, and among others the following:

"The administration of law touching inebriety as a factor in dealing with crime and public order should be under direct medical supervision."

"The correctional dealing with inebriates should be no longer merely punitive, but put under medical charge for the purpose of further scientific investigation."

"The traffic in liquor should be subject to better medical supervision to diminish adulteration and the sale of intoxicants as proprietary medicines."

"The question of license or tax should be considered with a view to the best medical opinion as to the burdens on the public treasury resulting from inebriety through consequent crime, pauperism, etc."

"The education of the community to an intelligent individual self restraint should be aided by medical instruction systematically provided for by the State, in the common school, and otherwise."

The New York Cancer Hospital, the Decorative Art Society, and the Virginia, Memorial, and Jewell Day Nurseries are to be aided by a loan exhibition of laces, fans, embroideries, tapestries, old silver, jewelry, watches, snuff-boxes, carved ivories, book-bindings, etc. The exhibition will be held in the Ortgies Galleries, 366 Fifth Avenue, in April, and will remain open for three weeks.

The New York County Medical Association.—At the next meeting, on Monday evening, the 18th inst., a paper on The Modern Treatment of Laryngeal and Pulmonary Tuberculosis, by Dr. Carl von Ruck, of Asheville, N. C., and Dr. J. W. Gleitsmann, of New York, is to be the special order.

The Death of M. Dujardin-Beaumetz, the well-known Paris clinician, is announced as having taken place on February 15th. He was in his sixty-first year.

The Death of Mr. John Whitaker Hulke, F. R. S., president of the Royal College of Surgeons of England and senior surgeon to the Middlesex Hospital, occurred on February 19th, after a brief illness. Mr. Hulke was sixty-four years old.

The Kings County Medical Association has elected officers as follows: President, Dr. J. C. Bierwirth; vice-president, Dr. N. W. Leighton; recording secretary, Dr. F. C. Raynor; corresponding secretary, Dr. H. C. Riggs; treasurer, Dr. E. H. Squibb; elected members of the executive committee, Dr. Jonathan Wright, Dr. J. D. Rushmore, Dr. R. M. Wyckoff, and Dr. T. M. Rochester.

Changes of Address.—Dr. Edmond E. Blaauw, to No. 285 Franklin Street, Buffalo; Dr. Fred J. Brockway, to No 183 West Seventy-third Street, New York; Dr. Ogden C. Ludlow, to No. 2309 Seventh Avenue, New York; Dr. William Moor, to No. 103 West Fifty-eighth Street, New York.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from February 24 to March 9, 1895:*

Meriwether, Frank T., First Lieutenant and Assistant Surgeon, is granted leave of absence for six months on account of sickness.

De Shon, George, First Lieutenant and Assistant Surgeon, is relieved from duty at Fort Logan, Colorado, and ordered to duty at Fort Douglas, Utah.

Walker, Freeman V., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect upon his relief from duty at Fort Trumbull, Conn.

Clendenin, Paul, Captain and Assistant Surgeon. The leave of absence granted for seven days is extended twenty-one days. The Attending Surgeon at Boston, Mass., will attend the sick at Fort Warren, Mass., during the absence of Captain Clendenin.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the three weeks ending March 9, 1895:*

Biddle, Clement, Passed Assistant Surgeon. Ordered to the Naval Hospital, Chelsea, Mass.

Atlee, L. W., Passed Assistant Surgeon. Ordered to the Naval Hospital, New York, N. Y.

Hesler, F. A., Passed Assistant Surgeon. Ordered before the Retiring Board.

Hoehling, A. A., Medical Director. Detached from the Naval Hospital, Chelsea, Mass., and granted three months sick leave.

Farenholt, Ammen, Assistant Surgeon. Detached from the Norfolk Navy Yard and ordered to the U. S. Steamer Baltimore.

Kindleberger, C. P., Assistant Surgeon. Detached from the U. S. Receiving-ship Vermont and ordered to the Norfolk Navy Yard.

Dunbar, Arthur W., Assistant Surgeon. Detached from the Naval Laboratory and Department of Instruction and ordered to the U. S. Receiving-ship Vermont.

Parker, J. B., Medical Inspector. Detached from duty in connection with the investigation of the Ford Theater disaster and ordered to the hospital and yard, Portsmouth, N. H.

McMurtrie, D., Medical Inspector. Ordered, in addition to his present duties, to duty in connection with the investigation of the Ford Theater disaster.

Richards, T. W., Assistant Surgeon. Detached from Naval Laboratory and Department of Instruction and ordered to the U. S. Steamship Minnesota.

Stoughton, James, Assistant Surgeon. Detached from the U S. Steamer Minnesota and ordered to the Puget Sound Naval Station.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Thirteen Days ending February 28, 1895:*

Kalloch, P. C., Passed Assistant Surgeon. Directed to rejoin his station at Cincinnati, Ohio. February 21, 1895.

Carter, H. R., Surgeon. To assume temporary command of Cape Charles Quarantine during the absence of Passed Assistant Surgeon T. B. Perry. February 27, 1895.

Perry, T. B., Passed Assistant Surgeon. To proceed to Brunswick, Georgia, Quarantine, for temporary duty. February 27, 1895.

Houghton, E. R., Passed Assistant Surgeon. Granted leave of absence for two days. February 18, 1895. Leave of absence extended five days. February 22, 1895.

Blue, Rupert, Assistant Surgeon. To proceed to San Francisco, California, for duty. February 23, 1895.

Society Meetings for the Coming Week:

Monday, *March 18th:* New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *March 19th:* New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Society of the County of Kings, N. Y.; Baltimore Academy of Medicine.

Wednesday, *March 20th:* Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); New Jersey Academy of Medicine (Newark).

Thursday, *March 21st:* New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

Friday, *March 22d:* Yorkville Medical Association, New York (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Saturday, *March 23d:* New York Medical and Surgical Society (private).

Births, Marriages, and Deaths.

Married.

McPheron—Cornish.—In Fort Atkinson, Wisconsin, on Thursday, March 7th, Dr. E. Melvin McPheron and Miss Cora May Cornish.

Died.

Burroughs.—In Brooklyn, on Thursday, March 7th, Dr. Benjamin Burroughs, in his forty-seventh year.

Du Bois.—In New York, on Saturday, March 9th, Dr. Robert Ogden Du Bois, in the thirty-sixth year of his age.

Field.—In New York, on Friday, March 8th, Dr. Matthew D. Field, aged forty-one years.

Letters to the Editor.

THE FIRST AMERICAN SYMPHYSIOTOMY (1880).

Philadelphia, *March 11, 1895.*

To the Editor of the New York Medical Journal:

Sir: The editorial of the Philadelphia *Medical News*, to which Professor Charles Jewett, of Brooklyn, refers in your issue of March 2d inst., was not written or inspired by me, as he appears to have conjectured. I saw it for the first time when in proof, and then appended a postscript. Dr. Gould wrote it of his own option, and we both credit Dr. Joel O. Williams with the Denison operation of April, 1880. The subject of this pubic division was alive and well in Texas last month, and her son, of more than half her age, is a well-grown lad of nearly fifteen years. Dr. Williams never professed to have "followed the example of Morisani." The operation was as original with him as it was with Sigault. The reading of Severin Pineau's book gave the idea to Sigault, and the division of the symphysis in a Cincinnati dissecting room taught the same to Williams, who had never heard of Sigault or Morisani or of symphysiotomy as performed by them. He operated on an undeveloped girl of thirteen, and with a George Tiemann tenotomy knife. Dr. Williams sent for a consulting physician of the town, and, failing to get him, was obliged to operate without a medical witness. The pregnancy being illegitimate and in a childlike subject, Dr. Williams kept the secret of the family, as he felt under obligation to do, and hence the long interval between the operation and its report. Dr. Williams is a country surgeon, with nerve enough to do very bold work, and he has been obliged to do such work at times with nonprofessional aid. If we were to discredit all obstetric surgery performed under such circumstances, we should be obliged to reject some very reliable Cæsarean cases that have been long unquestioned.

Robert P. Harris, M. D.

THE CHARCOT MONUMENT FUND.

New York, *March 11, 1895.*

To the Editor of the New York Medical Journal:

Sir: The following is a statement of the contributions received to date to the Charcot Monument Fund:

New York City.	
Dr. E. C. Seguin	$ 50 00
Dr. M. A. Starr	50 00
Dr. E. D. Fisher	50 00
Dr. C. L. Dana	20 00
Dr. C. A. Herter	50 00
Dr. A. Jacobi	10 00
Dr. Frederick Peterson	10 00
Dr. B. Sachs	25 00
Dr. George W. Jacoby	10 00
Dr. Ralph L. Parsons	5 00
Dr. J. A. Booth	2 00
Dr. J. F. Terriberry	2 00
Dr. D. Webster	1 00
Dr. S. B. Lyon	5 00
Philadelphia.	
Philadelphia Neurological Society	150 00
Baltimore.	
Dr. William Osler	50 00
Pittsburgh.	
Through Dr. T. Diller	58 00
Montreal.	
Through Dr. James Stewart	19 00
Boston.	
Dr. J. J. Putnam	5 00
Dr. P. C. Knapp	5 00
Medico-psychological Society	25 00
Buffalo.	
Through Dr. J. W. Putnam	15 00
Denver.	
Through Dr. H. T. Pershing	$10 00
St. Louis.	
Dr. L. Bremer	10 00
Chicago.	
Dr. A. Church	5 00
Total	$642 00

It is desirable that persons wishing to add to the fund send their contributions without delay.

C. A. Herter, M. D., *Secretary,*
819 Madison Avenue.

THE TAIT-HART AFFAIR.

10 New Court, Lincoln's Inn, London, W. C.,
February 26, 1895.

To the Editor of the New York Medical Journal:

Sir: An extract headed "From the *New York Medical Journal,*" dated 9th February, 1895, Mr. Lawson Tait and his Professional Brethren, has come to our notice.

As solicitors for Mr. Ernest Hart, whose name is therein mentioned, will you allow us, in the absence of that gentleman, who is still in India, to inform you that in the month of November, 1894, Mr. Lawson Tait commenced an action for slander against our client, Mr. Hart, claiming £10,000 damages; that on this coming to Mr. Hart's knowledge he, without waiting to be served with the writ, instantly appeared and demanded a statement of claim; that on the 12th December, 1894, we received from Mr. Lawson Tait's London agents a notice of discontinuance of the action, and that our client's costs thereof have since been paid by the plaintiff?

A. H. Arnould & Son,
Solicitors for Mr. Ernest Hart.

Proceedings of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Eighty-ninth Annual Meeting, held in Albany, on Tuesday, Wednesday, and Thursday, February 5, 6, and 7, 1895.

The President, Dr. George Henry Fox, of New York, in the Chair.

(*Continued from page 216.*)

Thirty-nine Cases of Strangulated Hernia and the Lessons Taught by them.—Dr. W. B. De Garmo, of New York, read a paper with this title.

In twenty-two of these cases reduction had been effected without operation; in the remaining seventeen operative measures had been employed, and in three of them death had resulted. Taxis, as the term was ordinarily used, had no definite meaning. The author's method of reduction consisted of two factors, traction and compression. The patient was placed upon a table or other unyielding surface, manipulation without violence was practised at the neck of the tumor, the latter being drawn forward, then with careful and graduated compression the tumor was slipped back through the canal. This method relieved the congestion of the tumor, forced back the gas, and, if properly carried out, was unlikely to rupture the intestine. An anæsthetic was not administered unless a cutting operation was to be performed at once. Externally only ice should be used, and this was frequently effective, especially if the tumor was composed largely of omentum. Hypodermic injections of morphine should be given only with the view of relieving severe pain; they sometimes masked the actual condition of the patient. In several of the author's cases the patients operated upon had been more than seventy years of age; extreme age was not, therefore, necessarily a contraindication to the operation. After the bowel had been exposed it was well to apply very hot water to it; this would frequently restore the equilibrium of the circulation in cases in which great congestion was present and in which gangrene appeared imminent. If an operation was to be performed it should be done promptly and would often result in saving life. The percentage of cases fatal from the operation was small. In young children reduction was usually possible without a cutting operation. Roughness of manipulation was always to be avoided; it would be almost certain to do more harm than good. A cathartic should not be given after the return of a damaged bowel.

The Symptomatology of Cerebellar Disease.—Dr. W. C. Krauss, of Buffalo, who reported four cases and showed specimens from them, said that in 1892 Luciani had made the most important contribution ever made to the subject of cerebellar disease, abandoning all previous landmarks and studying the subject *ab initio* after having removed a dog's entire cerebellum successfully. All observers were in agreement that the cerebellum played no part in the functions of the mind. The sexual instinct did not reside in the cerebellum in the sense in which it had been announced by Gall. The problem of the entire field of utility of the organ was still far from solved. Crossed action had been definitely determined in its function, and it was also certain that after its removal the movements of the lower extremities were interfered with. It had also been determined that as a center it presided over the co-ordination of movement. Some of the phenomena attending its injury were headache, optic neuritis, inclination to turn the head toward the side of the lesion, and tremors. The sexual appetite and some other functions were also more or less disturbed.

Abnormal Facial Development was the subject of a paper by Dr. Sumner Hayward, of Rochester, whose investigations had led him to the conclusion that abnormities in facial development resulted from some defective function or functions. One of the most potent causes to produce change in the facial outline was mouth-breathing. The necessity of relieving obstruction in the upper air-passages in early life was therefore apparent.

The Prevention of Hernia after Laparotomy.—Dr. H. S. Durand, of Rochester, criticised the method of making a very short incision in abdominal operations, especially in those performed for appendicitis, also the want of careful attention by some operators to cleanliness of the hands. Apparently insignificant factors sometimes decided the course which a wound would take. After the wound had been closed the author's custom was to take a piece of *crêpe lisse* sufficiently large to cover the wound two or three folds thick, and furnished with a double row of ordinary dressmaker's hooks securely fastened to the *crêpe*. The latter was then secured to the surface of the body over the wound with collodion, and the hooks on opposite sides were approximated to each other by strong silk, as one would lace a shoe. The traction thus exerted would relieve the strain upon the tissues contiguous to the wound and also prevent undue tension on the scar which formed. This could be removed when the sutures from the wound were removed, or it could be applied then for the first time, and it could be retained in position several weeks or months with advantage and without discomfort.

Inversion of the Appendix Vermiformis.—Dr. G. M. Edebohls, of New York, read a paper in which he said that the present methods of closing the opening in the stump of the appendix were objectionable, as infection was not impossible with any of them. The method which he proposed was to invert the stump after a portion of the appendix had been removed, or the whole of it in cases in which none had been removed, thus bringing the entire organ, after releasing it from its mesentery, into the lumen of the colon. The opening left in the peritonæum was to be brought together with a running or purse-string suture. In chronic inflammation of the appendix such an operation was believed to be very desirable. The procedure was not difficult and was preferable to amputation. The inversion should be begun with the fingers at the proximal end, and concluded by forcing the extremity into the invaginated portion with a dressing forceps. As to what would happen afterward to the appendix in its new situation, that was a matter of no practical importance. Theoretically, it should slough away, as its nutrition would be cut off.

Dr. Macdonald, of Albany, thought the present methods of treating the stump were sufficiently safe to warrant their continuance. In his own practice no fæcal fistula from the stump had ever resulted, and he thought such an occurrence improbable. The method proposed would be impracticable if the appendix was strictured, as was not infrequently the case, and also in some cases in which adhesions were present. In suppurative cases infection might be transferred to the interior of the bowel. General infection from the small wound in the stump of an appendix was a very remote possibility and need not be feared.

Dr. J. G. Clark, of Olean, thought the method proposed a most unnatural procedure, and believed that we should imitate and not deviate from Nature's methods in our surgical measures.

Dr. E. N. Liell, of New York, had seen the advocate of the procedure perform it in three cases, and conceded the merit that it would certainly obviate the possibility of infection from the stump.

Dr. Fiske, of New York, was not convinced that any advantage could be gained by the proposed method of invagination. The only case with which he was familiar in which it had been tried had resulted fatally.

Dr. H. J. Boldt, of New York, thought that in the ordinary suppurative cases the operation in question was inapplicable.

Dr. A. F. Currier, of New York, differed with Dr. Edebohls as to what would happen to the appendix being a matter of indifference or insignificance. If it floated free within the colon it would be quite likely to arrest the fæcal current and might cause fæcal accumulation, impaction, and a renewal of the inflammatory symptoms for which the original operation had been performed. It was his belief that a very large number of cases diagnosticated as appendicitis arose primarily from such a disturbance of the intestinal function. It was by no means certain that the incarcerated member would either atrophy or slough, and he thought the experiment a very dangerous one.

A New Method of Closing the Abdominal Wound after Cœliotomy was the title of a paper by Dr. R. Waldo, of New York. As hernia was the most common accident after abdominal section, he said, many methods had been devised to secure the abdominal wound. Some of these were referred to in detail. The method which was proposed consisted in a layer of deep sutures involving all the tissues, entering the skin an inch beyond the wound and emerging through the peritonæum near its cut edge, and an intermediate row which should include the skin, fat, and upper layer of fascia of the recti muscles. No sutures were to be buried, and if suppuration occurred it could readily be detected and the offending suture removed.

Dr. BOLDT dwelt on the importance of using all possible means of preventing ventral hernia, and said that any method of suturing which favored union of the wound by first intention would to that extent be useful and desirable.

Dr. CURRIER believed that no method of closing the abdominal wound was perfect. Many factors were involved in the procedure. If the tissues had been extensively bruised, suppuration would probably result, and this would, of course, weaken the resulting scar. The method suggested was similar to Wylie's in including the fascia of the recti, and was an improvement, inasmuch as all the sutures were accessible in case the healing process was in any way abnormal.

(*To be continued.*)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of December 12, 1894.

Climatology in Cirrhotic Rhinitis.—Dr. ROBERTS BINDER read a paper on this subject in which he remarked that the pathological changes in atrophic rhinitis presented a subject for much controversy—pathologists differed in their *a priori* investigations. Therefore a clinical *a posteriori* reasoning was accomplished under difficulties which induced factionalism as to whether the tissue metamorphosis was the result of a progressive hypertrophy, or whether it had its own isolated causes classing it as an affection *per se.* Nevertheless, we had a cirrhotic state to combat. Let it be the result of hypertrophy, as alleged by some, or the result of a pathogenic coccus or bacillus, as accounted by others, it still maintained the same course that scleroses did in other organs. This was a prolific development of tissue cells, in various stages, from round cells to developed cicatrices, causing caseous degeneration of epithelium, which result was directly due to a progressive contraction. This contraction, while homologous to the scleroses in other organs, owing to the situation, was more accessible and, consequently, more amenable to treatment by atmospheric changes, and directly subject to increased exacerbations when the surroundings were unfavorable. The speaker felt complacent over the fact that climate revealed to him measures of pronounced success in the amelioration and possible cure of this odious disease. As for local applications, his experience had been futile, although, at the same time, he had persevered. He did not doubt that this was the experience of all practitioners in the treatment of this stubborn malady; hence it behooved the thoughtful rhinologist to consider some method which would enable him to place the patient upon a vantage ground where the morbific changes would be inhibited and the remnants of healthy tissue and glands would be stimulated to normal physiological action, overcoming gradually a lesion that had defied medicinal treatment.

The paramount evil was apparent in this affection as in all chronic diseases—social ostracism. Truthfully, it was more apparent here than in some others; the offensive smell which was noticeable in the large majority of cases not only rendered the patients unfit for many offices, but it must be constantly a reminder of their infirmity, inducing melancholia and other psychical phenomena. The results of this condition could be depicted by observing physicians; that deplorable state which they had seen among the hopeless—the epileptics, the maimed, the phthisical, and the insane. Since colonization had done more as a restorative to the epileptics than medicinal or operative measures had, and since the healthy offspring of the tuberculous immigrant in Colorado demonstrated what could be done for the afflicted who feared Nature's law of heredity, the scientific climatologist conjectured wisely when he considered "what might be done for the chronic invalid in colonies, established in suitable places, and arranged politically, that they might compete with their fellows for a livelihood." This would be not only a step toward Utopia, but a lesson of philantrophy that could only be accomplished by the highest grade of civilization, urged and abetted by a compassionate humanity. Moreover, when morphology—and this referred more especially to morphological keratology and embryology—was established systematically in medical diagnosis, the treatment of many chronic diseases would resolve itself into colonization. The reason of this was patent, for the profession would recognize more explicitly causes of evolution and also those of atavism.

Ozæna, the prevailing symptom, although sometimes absent—as the speaker had seen it—was by no means diagnostic of the condition. Ozæna might be the result of tuberculous, syphilitic, and carious ulcerations, and even a result of accessory disease, although Drake had originally maintained that atrophic rhinitis never existed unless accompanied by antral, ethmoidal, or sphenoidal disease. Since, according to Dr. Binder's view, the ozæna was due to caseous degeneration of epithelium, this symptom, he said, was entirely dependent upon the intensity of the cirrhosis, and, according to Dr. E. Frankel's and Dr. Krause's theory, the diathesis and environments which favored the propagation of the *Bacillus fœtidus.* Why the *Bacillus fœtidus* evinced itself in some cases and not in others was a question that should be settled by the bacteriologists. The clinician was fully aware that the diathesis, surroundings, and other incidentals dependent upon the vocation of each patient augmented the development of this bacillus. Moreover, the site of the lesion was in itself a septic location, which was modified by the anatomical conformation of each individual's nose which was unfortunately attacked. This truth was another clew which the morphologist could employ in the revelation of the mysteries of anomalies and reversions. He had seen the typical nose of the anatomist's chart in clinics, but he had never seen two identical nasal chambers in either a physiological or a pathological state. Therefore the normal structure, prior to the pathological development, was the foundation upon which the intensity of the lesion depended; hence the peculiarity of each individual case.

The turbinates were the sites by preference for the morbid change in the atrophy of the nasal organs, and the classical seat in the major portion of the cases which had come under the speaker's notice had been the inferior and septal portion of the middle bone. Recent investigations had disclosed that the inspired air passed through the middle meatus, and that this was normal respiration. These investigations revealed to the climatologists the danger of vitiated air to an atrophic condition upon the middle bone. Hence the patient must have an ozonized air—air free from sulphurous smoke and noxious vapors of every description. In short, urban air, with its sooty and dusty composition, must be avoided in order not to increase the symptoms. There were three kinds of atmosphere admissible in the treatment; they were suburban, mountain, and sea air. The choice depended entirely upon the circumstances—*e. g.*, patients dwelling in large cities near the sea or in seaport towns should be sent to the highlands and to places where the relative humidity was less than at sea level. On the other hand, patients dwelling inland (the speaker would not say on highlands, for mountaineers were particularly free from atrophic rhinitis) should be sent upon sea voyages in order to derive full benefit. The suburban localities he mentioned only as palliatives for extreme changes, as some patients could not afford, for pecuniary reasons, to go farther than the counties adjacent to their respective homes. However, he recalled one case in which the patient had improved in the two months' time spent in the Schuylkill Valley, the desiccation of the secretion and the odor being cursory when he had returned for treatment. The cases which were beyond climatic therapy were generally those of patients who presented the most advanced lesions, but financial reasons had prevented them from receiving the full benefit of treatment and advice. These were the cases that colonization would aid.

The ideal course in the climatology of this affection depended entirely upon the case in vogue. First, the general condition of the patient must be considered—*e. g.*, was anæmia present? According to Dr. Binder's observation, it was in a large percentage of cases. He accounted for this morbid condition in the following manner: The lesion involved the nasal portion of the respiratory tract, and, in his estimation, any lesion implicating this tract, whether in the peripheral or in the central portion, prevented proper aeration of the blood. Hence the anæmia varied proportionately to the amount of tissue involved in this cirrhotic process. Notwithstanding, the anæmia should be treated with hæmatinics and a bracing atmosphere, in which there was an abundance of oxygen; the mountains of Pennsylvania and New York in summer, and the Atlantic seaboard in early spring fulfilled these requirements. Secondly, the patient's temperament should be considered. He would divide disposition into two states: irritability and repose. The general rule was that persons with a light complexion belonged to the reposed in temperament, while persons with a dark complexion were irritable. In the selection of an abode of health for the afflicted, this statement must be well borne in mind, as it was of the utmost importance to send the irritably inclined to climates which were of a sedative nature. Contrarily, the stolid should be sent to stimulating resorts, where animation would cause them, in part, to forget their malady.

The primary requisite in promoting the domination of the healthy tissue and fostering a metamorphosis in the disorganized structure in all cases was outdoor life; not for a definite length of time each day, but, if it was possible to remain in the atmosphere twenty-four hours, it would the better accomplish the desired result. The sleeping apartment should be roomy, and a free circulation of air should be active during the sleeping hours as well as when the room was unoccupied. Above all, steam radiation should be avoided. The dry air should be eschewed at all times, for the reason that the sufferer with cirrhotic rhinitis—unless the pathological surface was of small area, and this he had never seen—could not infuse the inspired air with sufficient moisture to insure a salutary influence upon his economy. Extreme cold should be shunned, and also localities that were extolled for dryness—such, for example, as Colorado and New Mexico, in the United States, and Egypt abroad. One of the worst evils which characterized these places was the violent sand storms, causing a mechanical irritation to a membrane passing through the various stages of chronic inflammation, and also causing a painful nasopharyngitis. In all cases that had come under his notice in Philadelphia, subjectively and objectively, the disease had been augmented during prolonged dry and cold spells. Contrarily, the summer months, especially the moist, warm days, benefited and relieved the patients and checked the process of destruction.

The abode and climate of preference, from which superior results would be obtained, was one the qualities of which consisted of picturesqueness, warmth, balminess, equability, and stimulant or sedative properties (according to the temperament of the patient). Picturesqueness afforded solace to the restless and fostered a feeling of joy and careless demeanor in those who were morose. In fact, there was nothing so free of sickly contamination as an ever-varying landscape.

Warmth was the next quality which the speaker recommended; and by warmth he meant a temperature of over 70° F., and it might range to 84° F. This was requisite for two reasons: it aided in moistening the inhaled air, and, owing to its mildness, the small amount of healthy tissue could perform its function admirably. Cold air, on the other hand, not only could not impregnate itself with moisture, but it was deleterious to the healthy membrane, and caused its hasty destruction. The second reason for warm air was the opportunity that it afforded for outdoor exercise, without bundling in swaddling clothes, which impeded free circulation and interfered with the glandular system. This system must be kept as nearly perfect as possible if a cure was to be hoped for in rhinitis cirrhotica. Moreover, accompanying this affection, or rather as one of the sequelæ, was a functional disturbance of the aural organ, due to agglutination of the mouths of the Eustachian tubes in the nasopharynx. The dripping of viscid mucus from the nose was responsible for this plastering process. Warmth, combined with a moderate relative humidity, was not only a preventive of this troublesome symptom, but a positive relief in cases of some length of duration.

Balminess was a combination of moisture and sunshine tempered with warm currents such as would be blown from the ocean by light breezes, and experienced in resorts along the southern coast of California, the eastern shores of Italy, and that delectable country of southeastern France and adjacent Italy washed by the shores of the Mediterranean Sea. It insured the victim from the fear of catching cold, and for this reason allowed him to take outdoor exercise with a feeling of immunity. The moisture in a balmy atmosphere was due to the degree of relative humidity; the latter was directly dependent upon the influence that the absolute humidity had upon the temperature. Since warmth was a component part of the climate he had recommended, it was well to observe that an extremely damp locality should be avoided, for the results which were hoped to be obtained from moisture would not be forthcoming, but instead the patient would suffer from a high degree of relative humidity. In order to avoid excessive humidity, it was well, according to meteorological observations, to eschew extreme temperatures.

The equability of which Dr. Binder had spoken as a factor in the selection of a suitable domicile for atrophic conditions of the nares applied, he said, more to the equability of the *warmth* which he had already described. Coasts or islands washed by warm ocean currents were to be mentioned as possessing equability. Truly all large bodies of water averted the rapid rise and fall of the temperature wave, although the confines of the Great Lakes of America were visited by most severe rises and falls of temperature in a short period of time, and the direct cause of this, he thought, was the plateau-like situation of these lakes, as this was not true of Salt Lake, which was in a basin, although elevated at the same time some 4,000 feet.

It was with some regret, he said, that he spoke of sea voyages, knowing that there was not the desired facility. There were no planned voyages by steamers departing from any of our seaports for southern sea benefits, calling at stations of interest and salubrity, so that the only expedient was a sojourn upon one of the islands in the Atlantic Ocean, such as the Bermudas, Azores, or Madeira Islands, which combined equability and sedativeness.

The last qualities that were necessary considerations in the choice were influences which bore upon the corporeal and mental faculties of the individual; they were sedativeness and a stimulant character. He had previously classed the variety of patients who improved best in climates possessed of one or the other of these attributes. Sedativeness would be found in localities or resorts whose air was balmy, mild, and bright, and whose elevation must not exceed four hundred feet above sea level. As stated before, the following islands were unwavering examples of this character: the Bermudas, the Azores, and Madeira. Stimulation was found at high altitudes, ranging from five hundred feet to a mile above sea level. Of the resorts which combined equability and a stimulant action he mentioned Nice, Mentone, Cannes, and Villefranche on the shores of the Mediterranean; but, according to many climatologists, the islands in this sea were superior—Capri, Malta, Majorca, and Sardinia. In the Atlantic Ocean the Canary Islands were noted for their stimulating attributes, and in the Pacific mention might be made of Western Australia. The southern coast of California had an atmosphere the volume of which was equable and stimulating. The counties of that State bordering on the ocean were Santa Barbara, Ventura, Los Angeles, and San Diego. All these resorts had improved hostelries, and home comforts could be partaken of very liberally. Therefore the physician need not hesitate to give his patients advice against them owing to lack of accommodations.

Dr. Binder stated that recently in two cases of atrophic rhinitis tuberculosis of the lungs had developed. Therefore it appeared to him that there must be fibroid changes in other organs, following the progress of the disease in the nose; or, while the destruction was active in the nasal organs, it was a suitable and favorable opportunity for the ingress of the tubercle bacillus. If this presumption could not be refuted, we had additional reason to treat this affection upon a climatic basis, both to prevent this result and to hasten the subsidence of the nasal lesion.

Book Notices.

Clinical Lectures and Essays on Rickets, Tuberculosis, Abdominal Tumors, and other Subjects. By Sir William Jenner, Bart., G. C. B., M. D. Lond., F. R. C. P., etc., Physician in Ordinary to the Queen, Consulting Physician to University College Hospital. New York: Macmillan & Co., 1895. Pp. 3–322. [Price, $4.]

This volume is almost unique in medical literature. It is a collection of lectures most of which were delivered thirty years ago, now published without revision as they were then written. It not only evinces courage on the part of the author, but proves that accurate clinical observations never grow old and are as correct at one time as at another. Rickets was the same forty years ago that it is to-day, and Sir William Jenner's genius enabled him to see at that time practically all that observers have seen since. It is true that recent observations have taught us much regarding the ætiology and histology. Men of the younger generation frequently fall into the error, however, of supposing that all that is known of medicine is of recent date. The statements often heard regarding the revolutionizing of medicine by modern research are proved by works of this character to be entirely too sweeping. This little book furnishes much food for reflection. The lectures on rickets, which were delivered in 1859 and 1860, will be found to present nearly all the knowledge regarding the clinical aspects of that disease which we possess to-day. It is true that scurvy and rickets were not clearly distinguished, but laryngismus and carpo-pedal contractions, of which so much has been said in recent years, are fully considered. The author's clinical descriptions are graphic and often intensely interesting. In this regard he has long been considered a master. Except in the minor details in which histological research has changed our ideas somewhat, the author's description of rickets forms as profitable reading to-day as it did thirty-five years ago.

Five lectures are devoted to abdominal tumors, and they were delivered in 1869 and 1870. The first is devoted to methods of clinical observation and physical examination. Taken together, these lectures form a very complete and most satisfactory work upon this important subject and upon physical examination of the abdomen.

In the lectures on scrofula and tubercle, although we now know that the ultimate pathological products of the two are identical, the author still holds that the constitutional states which precede the local manifestations are of a different type and deserve separate consideration. Taken as a whole, if it had no other result, the work would demonstrate very clearly the reasons for the high regard in which Sir William Jenner has so long been held by the medical world.

Surgical Nursing. By Bertha M. Voswinkel, Graduate of the Episcopal Hospital, Philadelphia. With One Hundred and Eleven Illustrations. P. Blakiston, Son, & Co., 1895. Pp. xiv–9 to 168. [Price, $1.]

The author of this little work says that it has been written for that large body of nurses whose technical education is not sufficiently advanced to enable them thoroughly to master the subject of general nursing. We do not understand how a nurse can become a really efficient surgical nurse who is not a competent general nurse. The most satisfactory specialist is the one who has developed from the general practitioner. Whatever the author's object may have been, the result is extremely satisfactory. Her book contains in very concise and practical form a large part of the special knowledge which the surgical nurse should possess. The chapters devoted to antiseptics and antiseptic dressings are especially good. The work must prove, on the whole, a valuable one for the general nurse who wishes to become proficient in modern surgical work.

Diagnosis, Differential Diagnosis, and Treatment of Diseases of the Eye. By A. E. Adams, M. D., Instructor in Diseases of the Eye in the Post-graduate Medical College, etc. New York and London: G. P. Putnam's Sons, 1894. Pp. 94.

This little book gives the symptoms of the various diseases of the eye in tables of parallel columns, thus presenting to the reader at a glance the principal diagnostic features. In other words, the sifting of the larger text-books, which is wearisome sometimes to a degree, is here done for the practitioner better than would be possible for any one not skilled in eye diseases.

BOOKS, ETC., RECEIVED.

Clinical Gynæcology, Medical and Surgical. For Students and Practitioners. By Eminent American Teachers. Edited by John M. Keating, M. D., LL. D., and by Henry C. Coe, M. D., M. R. C. S., Professor of Gynæcology, New York Polyclinic. Illustrated. Philadelphia: J. B. Lippincott Company, 1895. Pp. xviii–994.

Hygiene with Anatomy and Physiology. Being an Amplification of Edwards's Catechism of Hygiene. By Joseph F. Edwards, A. M., M. D., etc. Intended for Schools and General Reading. New York: Edward P. Slevin, 1895. Pp. ix–435.

On Digestive Proteolysis: being the Cartwright Lectures for 1894. Delivered before the Alumni Association of the College of Physicians and Surgeons of New York. By R. H. Chittenden, Ph. D., Professor of Physiological Chemistry in Yale

University. New Haven: Tuttle, Morehouse, and Taylor, 1895. Pp. xiv–137.

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book especially adapted for Students of Medicine, Pharmacy, and Dentistry. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, etc. Fifth Edition, thoroughly revised. With Forty-four Illustrations and Eight Colored Plates, representing Sixty-four Chemical Reactions. Philadelphia: Lea Brothers & Co., 1895. Pp. xiii–17 to 502.

Suggestions to Hospital and Asylum Visitors. By John S. Billings, M.D., Director of the Hospital of the University of Pennsylvania, and Henry M. Hurd, M.D., Superintendent of the Johns Hopkins Hospital. With an Introduction by S. Weir Mitchell, M.D. Philadelphia: J. B. Lippincott Company, 1895. Pp. 48. [Price, 50 cents.]

Memoranda and Tables of Human Anatomy. Volume I. Being a Complete Description of the Muscles, Ligaments, etc. For the Use of Practitioners and Students of Medicine. By Justin Herold, A.M., M.D., etc., and Sebastian J. Wimmer, M.A., M.D., etc. With a Preface by Professor James E. Garretson, A.M., M.D. Philadelphia: The Medical Publishing Company, 1895. Pp. xii–7 to 269.

Traité élémentaire de clinique thérapeutique. Par le Dr. Gaston Lyon, chef de clinique médicale à la Faculté de médecine de Paris. Paris: G. Masson, 1895. Pp. xi–964. [Prix, 15 francs.]

Die Diphtherie. Von Dr. A. Baginsky. [Separatabdruck aus der *Real-encyclopädie der gesammten Heilkunde.*]

Morphology as a Factor in the Study of Disease. By Harrison Allen, M.D. [Reprinted from the *Transactions of the Congress of American Physicians and Surgeons.*]

A Study of the Mode of Action of Ichthyol in Inflammatory Conditions. By D. Braden Kyle, M.D. [Reprinted from the *Therapeutic Gazette.*]

The Treatment of Syphilis with Intravenous Injection of Mercuric Chloride. By Walter Lytle Pyle, M.D. [Reprinted from the *Medical News.*]

The Prevention and Treatment of Ophthalmia Neonatorum, and the Necessity for more Efficient Legislation to Prevent Blindness from this Cause. By Charles H. May, M.D. [Reprinted from the *Medical Record.*]

Bacteriological Study of Four Cases of Diphtheria treated with Antitoxine by Dr. Louis Fischer at the Municipal Hospital, Philadelphia. By D. Braden Kyle, M.D. [Reprinted from the *American Journal of the Medical Sciences.*]

Cylindroma Endothelioides of the Dura Mater causing Localizing Symptoms and Early Muscular Atrophy. By L. Bremer, M.D., and N. B. Carson, M.D., of St. Louis. [Reprinted from the *American Journal of the Medical Sciences.*]

A Case of Fracture of the Thyreoid Cartilage; Recovery without Tracheotomy. By Thomas B. Eastman, M.D., of Indianapolis. [Reprinted from the *Journal of the American Medical Association.*]

Ophthalmia Neonatorum. By C. A. Veasey, M.D., of Philadelphia. [Reprinted from the *Medical News.*]

The Halo of Rainbow Symptom in Glaucoma. By Joseph E. Willetts, M.D., of Pittsburgh, Pa. [Reprinted from the *Annals of Ophthalmology and Otology.*]

Twenty-ninth Annual Report of the St. Francis Hospital, New York. For the Year ending December 31, 1894.

Twenty-fifth Annual Report of the New York Ophthalmic and Aural Institute for the year beginning October 1, 1893, and ending September 30, 1894.

Tenth Annual Report of the Adirondack Cottage Sanitarium. November, 1894.

Transactions of the Medical Society of the State of North Carolina. Forty-first Annual Meeting, held at Greensboro, N. C., May 15, 16, and 17, 1894.

Contribucion al Estudio del Paludismo en el Puerperio. Tesis del Doctorado en Medicina. Por D. Enrique Nunez y Palomino. Premio extraordinario en los grados de Licenciado y Doctor en Medicina y Cirujia, etc. Habana: Imp. del Avisador Comercial, 1894. Pp. 7 to 45.

Bicycling for Women from the Standpoint of the Gynæcologist. By Robert L. Dickinson, M.D., Brooklyn. [Reprinted from the *American Journal of Obstetrics.*]

Miscellany.

The Influence of the Force of Gravity on the Circulation.—In No. 342 of the *Proceedings of the Royal Society* there is an abstract of a paper on this subject by Mr. Leonard Hill, of London, who remarks that the effect of position of the body upon the circulation of the blood is a matter of daily observation with the physician and surgeon, but that it has been curiously neglected by physiologists. So far, he says, as his researches into the history of the subject go, the mere fact that the feet-down posture lowers arterial pressure, and that the feet-up posture heightens it, is almost all that has been determined. The author's attention was first drawn to the influence of gravity upon the circulation by observations which he had made upon the normal intracranial tension in a patient who had been trephined. Mr. Hill found that the pressure was negative while the man sat upright, but that it became positive as soon as the head was bent down toward the knees and on any expiratory effort. The air-bubble index in the apparatus showed large cardiac and respiratory undulations.

The research, says the author, has been carried out upon rabbits, cats, dogs, and monkeys, and the same general results have been obtained from all. The animals were anæsthetized in all the experiments and were placed upon a board with the limbs fully extended in the same direction as the longitudinal axis of the body. The venous pressures were recorded by means of a manometer filled with a saturated solution of manganese sulphate and placed in connection with a delicate tambour or piston recorder. The cerebral pressure was taken in the torcular Herophili by the method described by the author in No. 55 of the *Proceedings of the Royal Society*. The respiratory tracings were taken by means of a broad band of strapping passed around the thorax and connected to either side of a Paul Bert tambour. The results of the research are shown in a series of tracings from which the following conclusions are drawn:

1. The force of gravity must be regarded as a cardinal factor in dealing with the circulation of the blood.
2. The important duty of compensating for the simple hydrostatic effects of gravity in changes of posture must be ascribed to the splanchnic vaso-motor mechanism.
3. The effects of changing the posture afford a most delicate test of the condition of the vaso-motor mechanism.
4. The amount of compensation depends largely on individual differences.
5. The compensation is far more complete in upright animals, such as the monkey, than in rabbits, cats, or dogs, and, therefore, is probably more complete in man.
6. In some normal monkeys over-compensation for the hydrostatic effects occurs.
7. In the normal monkey and in man gravity exerts but

little disturbing influence, owing to the perfection of the compensatory mechanism.

8. When the power of compensation is damaged by paralysis of the splanchnic vaso-constrictors induced by severe operative procedures, by injuries to the spinal cord, by asphyxia, or by some poison, such as chloroform or curare, then the influence of gravity becomes of vital importance.

9. The feet-down posture is of far greater moment than the feet-up posture, because, when the power of compensation is destroyed, the blood drains into the abdominal veins, the heart empties, and the cerebral circulation ceases.

10. Generally speaking, the feet-up posture occasions no ill effects.

11. The horizontal and feet-up postures at once abolish the syncope induced by the feet-down posture by causing the force of gravity to act in the same sense as the heart, and thus the cerebral circulation is renewed.

12. Firmly bandaging the abdomen has the same effect. While the heart remains normal, and so long as the mechanical pressure is applied to the abdominal veins, the blood pressure can not possibly fall.

13. If the heart is affected by chloroform or by curare poisoning, the restoration of pressure is incomplete, and it is possible that the heart may be stopped altogether by the inrush of a large quantity of blood caused by too rapid an application of pressure on the abdomen. More work would be thrown upon the heart than, in its impoverished condition, it could perform.

14. Vagus inhibition and cardiac acceleration are subsidiary compensatory mechanisms in the feet-up and feet-down postures respectively.

15. Chloroform rapidly paralyzes the compensatory vasomotor mechanism and damages the heart.

16. Ether, on the other hand, paralyzes the compensatory vaso-motor mechanism only very slowly and when given in enormous amounts.

17. The vaso-motor paralysis induced by these anæsthetics lasts for some considerable time after the cessation of their administration.

18. Chloroform may, by destroying the compensation for gravity, kill the animal, if it is placed with the abdomen on a lower level than the heart.

19. Elevation or compression of the abdomen immediately compensates for the vaso-motor paralysis produced by chloroform.

20. Compression or elevation of the abdomen, together with artificial respiration and with squeezing of the heart through the thoracic walls, is the best means of restoring an animal from the condition of chloroform collapse.

21. The feet-down posture inhibits respiration, and the feet-up posture accelerates it.

22. These respiratory results probably depend upon the stimulation of sensory-nerve endings by changes of tension brought about by the alterations of posture, because the results are abolished by dividing the vagi.

23. In the feet-down posture the respiration is thoracic in type and the abdomen is retracted; in the feet-up posture the respiration is diaphragmatic and the abdomen is freely expanded.

24. These types of respiration tend to compensate for the effects of gravity on the circulation, for the retraction of the abdomen in the feet-down posture mechanically supports the abdominal veins, while the thoracic inspirations aspirate blood into the heart. In the feet-up posture the full and free expansion of the abdomen withdraws all obstacles to the compensatory dilatation of the abdominal veins.

In the last part of the paper the medical aspects of this research are discussed. It is suggested that emotional syncope is due to paralysis of the splanchnic area, and a case is cited where compression of the abdomen immediately removed the syncopal condition. The same treatment, or that of elevation of the abdomen, is suggested for conditions of shock, for chloroform collapse, and after severe hæmorrhage.

The Tri-State Medical Society of Iowa, Illinois, and Missouri.—The next meeting will be held in St. Louis, on April 2, 3, and 4, 1895, under the presidency of Dr. James Moores Ball, of St. Louis. The preliminary programme includes the following papers: Medical Evils, by Dr. W. R. Allison, of Peoria, Ill.; The Influence of Malaria in Rhinological and Laryngological Work, by Dr. J. R. Ash, of Brighton, Ill.; The Open-air Treatment of Consumption, by Dr. Robert H. Babcock, of Chicago; The Anatomical Renaissance, by Dr. James Moores Ball, of St. Louis; The Use of the Lever in Clubfoot, by Dr. C. W. Barrier, of St. Louis; The Treatment of Trachoma and Trachoma Sequelæ, by Dr. Charles H. Beard, of Chicago; Tuberculosis of the Bones, by Dr. D. C. Brockman, of Ottumwa, Iowa; The Uterine Sound and Curette, by Dr. W. M. Catto, of Decatur, Ill.; The Treatment of Functional Dyspepsia, by Dr. J. M. G. Carter, of Waukegan, Ill.; The Recent Advances in Therapeutics, by Dr. David Cerna, of Galveston, Tex.; Food Adulteration—Its Cause and Prevention, by Dr. Charles S. Chase, of Waterloo, Iowa; A Report of a Herniotomy, by Dr. J. J. Conner, of Pana, Ill.; Inflammation of the Anal Canal, by Dr. George J. Cook, of Indianapolis; The Diagnosis of Intra-abdominal and Pelvic Pathological Conditions, by Dr. A. H. Cordier, of Kansas City; What is Scrofula? by Dr. A. C. Corr, of Carlinville, Ill.; The Study of a Family of Four Degenerate Children, by Dr. Richard Dewey, of Chicago; Injuries to the Pelvic Floor, by Dr. F. B. Dorsey, of Keokuk, Iowa; Pleurisy with Effusion, by Dr. H. C. Eschbach, of Albia, Iowa; The Pathology and Treatment of Appendicitis, by Dr. A. H. Ferguson, of Chicago; The Treatment of Stricture of the Rectum, by Dr. S. G. Gant, of Kansas City; The Parasitic Nature of Cancer, by Dr. Heneage Gibbes, of Ann Arbor, Mich.; Mucocele of the Frontal Sinus, by Dr. W. E. Guthrie, of Bloomington, Ill.; Rabies, by Dr. H. A. S. Hartley, of Keokuk, Iowa; Some Forms of Mastoid Operation, by Dr. R. C. Heflebower, of Cincinnati; The Indications for Laparotomy, by Dr. W. O. Henry, of Omaha, Neb.; Some Thoughts on Elimination, by Dr. T. E. Holland, of Hot Springs, Ark.; Osteal Tuberculosis without Arthritis, by Dr. Bayard Holmes, of Chicago; The Economics and Ethics of Reproduction, by Dr W. Hutchinson, of Des Moines, Iowa; Nocturnal Pollutions and Spermatorrhœa, by Dr. Henry Jacobson, of St. Louis; When Shall we Amputate? by Dr. Webb J. Kelly, of Galion, Ohio; Brain Tumor and its Surgical Treatment, by Dr. Emory Lanphear, of St. Louis; Ununited Fractures and Bone Lesions, by Dr. E. R. Lewis, of Kansas City; To Spray or not to Spray? by Dr. H. W. Loeb, of St. Louis; Excision of the Rectum *vs.* Colotomy, by Dr. J. M. Mathews, of Louisville; Excision of the Elbow Joint in Children, by Dr. Samuel E. Milliken, of New York; An Address in Medicine—The Relation of Infection to the Nervous System, by Dr. H. N. Moyer, of Chicago; The Electrotherapy of Sexual Neurasthenia, by Dr. F. P. Norbury, of Jacksonville, Ill.; Hysteria and Organic Disease of the Nervous System, by Dr. Hugh T. Patrick, of Chicago; Gastric Neuroses and their Diagnosis and Treatment, by Dr. H. E. Pearse, of Kansas City; Puerperal Eclampsia, by Dr. A. D. Price, of Harrodsburg, Ky.; The Stigmata of Nervous Diseases and their Utility in Diagnosis, by Dr. John Punton, of Kansas City; Epilepsy—Removal of a Cerebral Cyst. Typhoid Ulcer—Perforation and Operation, by Dr. B. Merrill Ricketts, of Cincinnati;

An Address in Gynæcology.—Observations on the Peritonæum in Fifty Autopsies, by Dr. F. Byron Robinson, of Chicago; Ophthalmia Neonatorum, by Dr. E. Orrin Sisson, of Keokuk, Iowa; A Clinical Report on Thyreoid Extract, by Dr. Edwin Walker, of Evansville, Ind.; Narcophilia, by Dr. W. F. Waugh, of Chicago; The Treatment of Chronic Suppurative Middle-ear Diseases, by Dr. M. F. Weymann, of St. Joseph, Ill.; Tumors of the Eyeball, by Dr. William H. Wilder, of Chicago; The Hysterical Element in Joint Diseases, by Dr. William E. Wirt, of Cleveland; An Address in Surgery, by Dr. John A. Wyeth, of New York. Papers will be read (the titles to be announced) by Dr. J. F. Binnie, of Kansas City; Dr. George W. Cale, of St. Louis; Dr. H. C. Crowell, of Kansas City; Dr. Gilbert I. Cullen, of Cincinnati; Dr. Charles L. Dana, of New York; Dr. Edward P. Davis, of Philadelphia; Dr. W. B. Dewees, of Salina, Kan.; Dr. J. H. Etheridge, of Chicago; Dr. Ferdinand Henrotin, of Chicago; Dr. J. R. Hollowbush, of Rock Island, Ill.; Dr. J. A. J. James, of St. Louis; Dr. Howard A. Kelly, of Baltimore; Dr. W. B. La Force, of Ottumwa, Iowa; Dr. Bransford Lewis, of St. Louis; Dr. I. N. Love, of St. Louis; Dr. G. Frank Lydston, of Chicago; Dr. J. H. M'Intyre, of St. Louis; Dr. L. A. Malone, of Jacksonville, Ill.; Dr. A. H. Meisenbach, of St. Louis; Dr. George Minges, of Dubuque, Iowa; Dr. F. D. Mooney, of St. Louis; Dr. Adolf Meyer, of Kankakee, Ill.; Dr. H. H. Mudd, of St. Louis; Dr. Paul Paquin, of St. Louis; Dr. Roswell Park, of Buffalo; Dr. James F. Percy, of Galesburg, Ill.; Dr. Francis Reder, of Hannibal, Mo.; Dr. John Ridlon, of Chicago; Dr. T. Hunt Stucky, of Louisville; and Dr. W. N. Wishard, of Indianapolis. Dr. W. W. Keen, of Philadelphia, will hold a surgical clinic, and Dr. Charles A. Oliver, of Philadelphia, will hold an ophthalmic clinic.

Some Rare Forms of Gout.—In the March number of the *University Medical Magazine* there is a short article on this subject by M. Debout d'Estrees, of Contrexéville, who relates the histories of a few cases that have come under his observation. The first was that of a man, sixty-three years old, who went every year to Contrexéville to obtain immunity from the evils of excesses he was yet to commit. The patient said that after sitting for a long time at his dentist's the day before, he had been seized during the night with an intense pain in the region of the right parotid, which was hot, red, and swollen. No external application having brought relief, the author suspected a gouty element. However, he made the diagnosis of an abscess of dental origin, which would probably need surgical interference; but when he visited the patient two days later the parotid was flat, and gout had invaded the left knee. Two months afterward M. d'Estrees saw the patient again at Contrexéville, and found that the gout had invaded successively the left parotid and the right knee. The patient felt well then, but complained of a very disagreeable salty taste in the mouth at the beginning of each meal. When examining the patient the author pressed upon the parotids, and at once excited the salty taste, which he subsequently demonstrated was produced by saliva loaded with urates, the epiphenomenon of the gouty attack.

On another occasion he was called to see a patient with gouty parotiditis. In this case the attack in the parotid was preceded by an attack in the wrist of the same side. As external applications had been used without success, the author did not hesitate to use internal remedies, and prescribed tincture of fresh flowers of colchicum, fifty drops three times in twenty-four hours, and with each dose four grains of quinine sulphate. The treatment, he says, proved successful.

In another case gout began in the testicle, passed to the toe, and ended in the lung. In this case it was not, as in the cases described by Professor Potain, in the apex or at the base that the gouty congestion took place, but in the central part, and it did not extend over a surface of more than six centimetres across. Over and under this band of congested lung the respiratory murmur was perfectly normal.

What must a practitioner do, asks the author, if he meets with such a case of gout? In most cases, he says, if external applications are insufficient, he must use internal remedies. After he has calmed the attack he must procure the elimination of the uric acid and induce the patient to adhere to a selected diet and to strict hygiene.

The Early Signs of Locomotor Ataxia.—According to Professor Fournier, the first symptoms of locomotor ataxy may be classed as follows: (1) Sign of Westphal; (2) sign of Romberg; (3) the "stairs" sign; (4) crossing of the legs; (5) walking at the word of command; (6) standing on one leg.

(1) Westphal's sign is well known; it consists in the abolition of the patellar tendon reflex, and is present in two thirds of the cases.

(2) Romberg's sign can be thus appreciated: The eye is an indirect regulator of motion; it helps to correct deviations in walking and maintains the equilibrium. When a patient is suspected of incipient ataxy, it will often suffice to make him close his eyes when in the erect position to verify the diagnosis. In a few instances his body will oscillate, and if the malady is somewhat advanced he will be in danger of falling.

(3) The "stairs" symptom. One of the first and most constant symptoms of incipient locomotor ataxy is the difficulty with which the patient will descend stairs. If questioned closely on the subject he will say that at the very outset of his malady he was always afraid of falling when coming down stairs.

(4) The manner in which a patient crosses his legs is often significant. In the normal state a man when performing that act lifts one leg simply to the height necessary to pass it over the other, whereas in the affection under consideration he lifts it much higher than necessary, describing a large segment of a circle.

(5) Walking at the word of command. The patient seated is told to get up and walk instantly. After rising he will hesitate, as if he wanted to find his equilibrium before starting off. If while in motion he is told to stop short, his body, obeying the impulsion, inclines forward as if about to salute, or, on the contrary, he jerks himself backward in order to resist the impulsion forward.

(6) The patient is asked to stand on one leg, at first with his eyes open, afterward closed. Although man is not made for this position, yet he can balance himself pretty firmly for a little while. The ataxic will experience a great deal of difficulty, and will instinctively call to his aid his other foot so as not to fall. If his eyes are closed he will not be able to stand one instant, and if not held he would fall heavily to the ground. Such are the symptoms of incipient locomotor ataxy. They will not be all present frequently, but they should be all sought for in order to avoid an error which might have grave consequences.—*Practitioner.*

Horse Meat and Sausages.—In an article entitled *Chronique de l'hygiène*, which appeared in the *Union médicale* for February 16th, M. Jules Rochard calls attention to a report communicated by M. Nocard to the Paris sanitary authorities on the question of horse meat in sausages. M. Nocard had been empowered by the prefect of police to examine into a complaint put forward by a syndicate of the pork butchers of Paris, in which it was suggested that the venders of sausages made from horse meat should be obliged to attach a special label to the sausages indicating their nature. At that time, says the writer, there were no means by which horse meat could be distinguished from that of other animals, and M. Nocard, thinking that it was useless to lay down any measure that would receive no practical support, simply advised the prefect of police to redouble his care in the supervision of the abattoirs and of the inclosures where horses were slaughtered. Now, however, a simple and practical method has been discovered by M. Edelmann and M. Brautigam by which this meat may be distinguished from that of other animals, even when it is mixed in very small quantities with the other meat.

This question, says M. Rochard, is an important one, for the consumption of horse meat is gradually increasing. In 1892 16,483 horses, 206 donkeys, and 43 mules were slaughtered. All this meat is not sold in the 120 butcher shops which actually exist in Paris for the sale of horse meat alone, but the choice parts are sold, and the rest is cut up into sausage meat. This new industry is not attended with any danger in Paris, because the abattoirs, the shops, and the factories are under the constant supervision of competent veterinary surgeons; but in the suburbs and in the provinces such supervision exists in name only.

On the other hand, says M. Rochard, if sausages made from horse meat may be eaten in Paris without any danger arising from their consumption, the manufacturers who sell them without indicating their true nature deceive the public and carry on a dishonest competition with the pork butchers. For this reason, says the writer, it is fortunate that such a practical and sure method has been discovered whereby this deception may be revealed.

This method consists in treating a bouillon which is obtained from the suspected product with iodized water. If it contains horse meat, no matter how small the quantity, a peculiar violaceous reddish-brown color will appear. The experiments made by M. Edelmann and M. Brautigam have been tested and verified in M. Nocard's laboratory and under his personal supervision. The procedure is easy and does not call for a complicated outfit, the description of which may be found in M. Nocard's report to the board of health which appeared in the *Compte-rendu des séances du Conseil* for February, 1895. This report ends with the statement that the board of health voted, without discussion, that the manufacturers of sausages made from horse meat should attach a special label to the sausages indicating their true nature.

Influenza: Do Doctors Know Anything about it?—An evening contemporary assures its readers that notwithstanding the fact that we are now in the midst of the fifth successive annual epidemic of influenza doctors know little or nothing about it. There is, perhaps, some justification for this in the circumstance that a good many immature practitioners, who desire to pose as scientists *in excelsis*, have assured the public on many occasions that science really can not say what influenza is. But now let us ask ourselves with the downrightness of mere common sense what it is that our profession really does know, and know thoroughly, about influenza. In the first place, we know the disease when we see it; we know also the injurious physiological and pathological changes it produces in the nervous system, the lungs, the liver, and other organs of the body; we know how, by prompt, early treatment, to reduce those changes to a minimum; and we know how to repair the damage done by those changes when the disease is brought to a termination. "But," it will be said, "if you claim to know all these things, you claim to know everything about influenza." No; we do not. We do not claim to know precisely what its cause is; nor do we profess to know entirely how to prevent it. But do we know what the cause of cancer is; or of typhoid fever; or of simple, or even of tubercular meningitis, and a hundred other things? Moreover, in the matter of prevention, can we prevent all other diseases of every kind except influenza? Can the lawyer, who thoroughly understands law, prevent crime? Can the theologian prevent sin? Can even the commercial man put an end to bankruptcy? Influenza has now been with us for five successive years. We can recognize it, we can treat it rationally and successfully, and to some extent we can prevent it. Perhaps when Providence has endowed us with omniscience and with almightiness as well, we may be able to entirely prevent the disease as well as to cure it. In the meantime a little "silence" might be "golden" on the part of the all-knowing lay journalist.—*Hospital.*

Nitroglycerin in the Treatment of Sciatica.—In the *Lyon médical* for February 24 there is an abstract of an article from the *Semaine médicale*, in which the author, Dr. P. M. Mikhalkine, of Nijni-Novgorod, remarks that he recently had occasion to become convinced of the powerful antineuralgic properties of nitroglycerin in three cases of persistent sciatica that had been absolutely rebellious to the action of antipyrine, of acetanilide, of chloral hydrate, of the bromides, and of other analogous medicaments, as well as to the employment of revulsives.

Under the influence of nitroglycerin two of the patients had been radically cured of their sciatica, and in the third case it had produced a considerable amelioration. It was administered sometimes in a one-per-cent. alcoholic solution, of which three drops a day were taken, sometimes under the form of the following mixture: A one-per-cent. alcoholic solution of nitroglycerin, 75 grains; tincture of capsicum, 113 grains; distilled peppermint-water, 225 grains. From five to ten drops of this mixture are to be taken three times a day.

A New Hæmostatic.—In the *Lyon médical* for February 17th there is an abstract of an article which appeared in the *Therapeutische Wochenschrift* for January 6th, in which the author, Dr. Hederich, of Heidelberg, recommends a new hæmostatic called ferripyrine. This substance is a definite combination of iron perchloride and antipyrine under the form of a reddish orange-colored powder which is easily soluble in cold water. It has several appreciable advantages over iron perchloride, and has neither its caustic qualities nor its bad taste; its hæmostatic properties are, moreover, superior to those of the perchloride. In a case of profuse hæmorrhage caused by a very vascular myxoma of the nasal cavity, the application of two tampons saturated with a twenty-per-cent. solution of ferripyrine was sufficient to arrest the flow of blood completely. It may also be employed internally in doses of eight grains. Dr. Hederich thinks that it should be tried in cases of blennorrhagia in injections of a one-per-cent. or a one-and-a-half-per-cent. solution.

"Female" or Woman?—Dr. Howard A. Kelly writes as follows to the editor of the *American Journal of Obstetrics*: "A good friend with a fine English sense, who occasionally looks over my shoulder as I write, left this note pinned to one of my papers a few days ago. I think the fault common enough to be worth while correcting publicly. And as it is manifestly an error to which a gynæcologist is more prone than other men, the correction ought to appear in *The American Journal of Obstetrics*: 'Take care not to use the word *female* as meaning "a woman." It is correct to speak of the female pelvic organs, but *a female* is not a woman. It is a cow, a mare, any animal of the female sex. It is old-fashioned English to call women females, and the expression is coarse in this sense.'"

Original Communications

AN OPERATION FOR THE RELIEF OF IMPERMEABLE OCCLUSION OF THE ŒSOPHAGUS OF FIVE YEARS' STANDING,

WITH DILATATION BY A NEW METHOD.

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Reported by Dr. HOWARD CARTER,
FIRST ASSISTANT;
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M. G., female, aged six years and a half, was brought to my office with the following history: When two years old she swallowed concentrated lye. The accident was discovered immediately after its occurrence and prompt medical assistance given; great œdema of the parts followed, and for a period of four days she was unable to draw the tongue into the mouth. When the local swelling and œdema had subsided, she was found to be unable to swallow. It appears that no attempt was made to prevent the formation of organic stricture until four months after the accident, the patient being nourished in the mean time through the rectum and by inunction.

Numerous attempts were then made to pass bougies through the œsophagus, some under the influence of an anæsthetic and some without. A very limited number of these trials were successful, and on such occasions the withdrawal of the instrument was followed by the copious discharge of a purulent fluid. Once or twice, following the passage of the bougie, the patient had succeeded in swallowing a few drachms of water, the total quantity amounting to less than half a litre.

All further attempts to dilate or in any way to treat the stricture were then abandoned for a period of thirteen months, nutrition being maintained endermically and through the rectum. Gastrostomy was then successfully performed, and through the fistula then established the patient received all her nourishment. Many attempts to penetrate the stricture by von Hacker's method (viz., of swallowing a ligature) were tried, but without success.

At the present time the patient is dwarf-like, and weighs only nineteen pounds, the limbs resembling those of a poorly nourished child of two years and a half; the facial expression is pinched and anxious, the intellect bright, with strongly marked individuality, and a predominating determination to "get cured."

The patient being chloroformed, an examination was made in the following manner: The fistulous opening in the epigastrium was first dilated by means of the index finger, which was introduced into the cardiac orifice of the stomach for a distance of about four centimetres. The lower end of the œsophagus was found to be intact and the action of the sphincter perfect. Some destruction of the gastric mucosa had taken place, evidenced by the presence of cicatricial tissue. The stricture was too high to be located by the finger, which was withdrawn and a soft metal bougie introduced; this passed up easily to a distance of twelve centimetres from the external opening in the epigastrium. A plaited-silk bougie was then introduced through the pharynx and into the œsophagus. The stricture was located about eighteen centimetres from the teeth, with a distance of seven centimetres of tortuous cicatricial tissue between its beginning and its end above the cardia.

At this point the œsophagus is in close relation to the arch of the aorta, vena azygos, left common carotid artery, and thoracic duct. Further examination showed great distention of the œsophagus, which had formed two diverticula on either side of the upper end of the stricture, the one to the right lying directly behind the manubrium sterni, the other over the apex of the left lung. The probable capacity of these two pockets amounted to thirty cubic centimetres.

Having arrived at this understanding of the case, we determined to perform an œsophagotomy as near to the beginning of the stricture as possible.

First Operation.—The bougies being removed, a metal male catheter was introduced through the pharynx and the œsophagus, and pushed forward and to the left of the trachea until the catheter could be distinctly felt immediately below the skin in the side of the neck. An incision was made, four centimetres in length, parallel to the inner border of the sterno-mastoid muscle, dividing the skin, fascia, platysma, connective tissue, and the anterior wall of the œsophagus, which was drawn forward and united to the integument by interrupted silk sutures.

Owing to the debilitated condition of the patient, further procedure was postponed for a period of three weeks, during which time the œsophageal mucosa healed to the skin. For the first few days the pulse averaged 120, the temperature 100° F. Some difficulty was experienced from the constant flow of saliva over the wound, but no suppuration of any consequence followed. The sutures were removed on the seventh day.

When the wound was healed the nozzle of a syringe was introduced through the fistula in the neck and passed deeply toward the œsophagus; different attempts were made to inject water through the stricture, which, however, proved to be totally impermeable.

Second Operation.—Three weeks after the first operation, a second one was performed for the reduction of the stricture, which was now much more accessible, the patient's condition being as good as when first operated upon. When she had been chloroformed, the end of a soft rubber tube whose other extremity was attached to a Davidson's syringe was passed through the epigastric fistula into the gastric opening of the œsophagus. Pressure was applied to the bulb, but no water appeared at the fistulous opening in the neck. All attempts to inject water through the stricture from either side had utterly failed. A pillow was placed under the shoulders and the neck put upon the stretch.

The index finger was introduced into the œsophagus through the opening in the neck, a soft metal bougie being at the same time passed into the lower portion through the cardiac orifice; at first the end of the bougie could not be felt by the examining finger, and much careful manipulation was necessary before it could be positively determined. The uncomfortable proximity of important vessels precluded the use of any cutting instrument. The bougie was then removed and its end cut to a trocar point with a scalpel and reinserted as before; when located, gentle manipulation was made against its point through the stricture by the index finger in the œsophagus, a rotary movement being simultaneously given to the bougie. In this manner the stricture was successfully perforated; the bougie passed upward to the opening in the neck, where a stout double silk ligature was attached to its end and drawn down through the œsophagus and out of the artificial opening in the stomach. Upon this ligature there was threaded through its lumen a Nélaton rubber catheter of an external diameter of 1·5 centimetres; this was drawn through the œsophagus until the upper end had entered the neck, and then pushed upward until the upper end could be seized in the pharynx and drawn forward out of the mouth; both ends of the catheter were now outside of the patient's body; they were sutured to the ligature, the ends of which were tied together.

I have made the following notes regarding the subsequent course of the case, which was placed exclusively in my hands: The patient rallied fairly well after the operation; the hæmorrhage had been insignificant. Pulse remained 120 for several days; the temperature at no time exceeded 100·6° F. She became greatly emaciated. Liquid food was given at short intervals, and stimulants as indications demanded. Heat was kept applied constantly to the extremities, which were cold, especially the tip of the nose; the pupils remained dilated, and she manifested all the symptoms of profound shock. In order to allay the extreme nervousness and irritability antikamnia was given, and it acted promptly and satisfactorily in every instance. Some difficulty was experienced by the pressure of the catheter against the trachea, and I removed it from the mouth and drew its end through the opening in the neck. During convalescence food was introduced into the stomach through the epigastric fistula. On the seventh day the rubber catheter was reintroduced through the pharynx, and a plaited-silk Renvers funnel threaded upon and attached to the ligature passing through the catheter; their ends were brought in apposition and together they were drawn downward through the œsophagus, the catheter being entirely withdrawn and the funnel left in the œsophagus at the site of the stricture, its upper end remaining above it and its lower entering the stomach; the ends of the ligature were united on the outside as before. Both the artificial openings were then temporarily closed. The patient was given a glass of soda water, for which she had been constantly asking; the entire quantity was swallowed in the natural manner; this was soon followed by half a pint of water, and a few minutes later by half a pint of milk. *This was the first food that had entered the stomach through the natural channel for five years.* Pulse remained at 120; the pupils were widely dilated. On the fourteenth day I removed the Renvers funnel, the ligatures being left *in situ*. The general condition improved, the pulse falling to 85. She commenced swallowing through the natural channel. It was my intention to commence further dilatation at once, but owing to the non-arrival of suitable bougies dilatation was unavoidably delayed. At the end of a week the child was again brought to the office with the complaint that it could not swallow as well as at the time the tube was removed. She obstinately and persistently refused to open her mouth for the introduction of bougies, which were then introduced through the fistula in the neck. No. 12 (French scale) could be passed only with great difficulty.

The olive-bulbed whalebone bougies could not be passed in this manner. The stricture was then dilated every day for several days with plaited-silk urethral bougies until a No. 20 (French scale) was passed; this method caused so much discomfort that she surrendered unconditionally and opened her mouth. Olivary bougies ranging from 14 to 20 (French scale) were successfully passed through the stricture. I reintroduced a Renvers funnel, the largest that could be drawn through the stricture. This was removed on the third day, and three strands of heavy pedicle silk drawn through the œsophagus and gastric fistula. The end of one of these strands, which I shall designate A, was drawn through the opening in the neck and its ends tied together, forming a continuous cord.

The ends of another ligature were similarly tied; this I held in reserve in case of loss of either of the others. Upon the upper end of the remaining ligature I tied a loop two inches in length whereon could be attached any instrument with a similar loop which it might be necessary to draw through the œsophagus. The resistance to the passage of whalebone bougies necessitated some other method of dilatation. I therefore unscrewed the olivary bulbs from the whalebone probe and drilled a hole through the long diameter of each. Each bulb was threaded upon a stout ligature upon the end of which a six-centimetre loop was knotted. Two centimetres or so above each bulb I tied a knot sufficiently stout to prevent the ligature being drawn through.

The end of any loop can be passed through the œsophageal loop and the free end drawn through its own loop, thus uniting it to the main ligature by a reef knot.

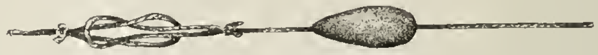

FIG. 1.

A little vaseline was applied to the bulb and the knots, and the whole apparatus drawn through the stricture, ligature A being at the same time drawn tight.

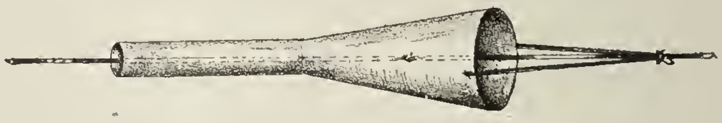

FIG. 2.—Renvers funnel.

I was able to pass the smaller sizes, but a No. 24 (French scale) could not be drawn through the stricture.

I then took each end of ligature A, which passed between the bulb and the edge of the stricture, and sawed backward and forward after Abbe's method until sufficient dilatation had taken place to permit the passage of the bulb. I then withdrew it and reintroduced a Renvers funnel.

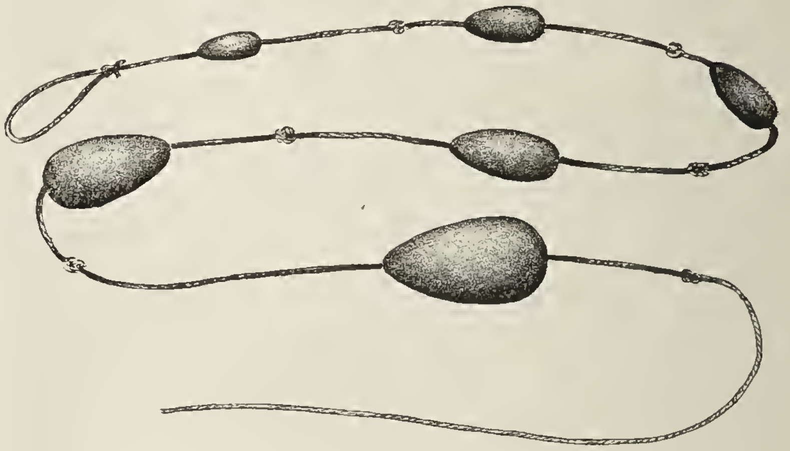

FIG. 3.—Author's rosary bougie.

The patient bore the see-sawing very badly, complaining of pain in the region of the stricture; the granulating edges of the gastric fistula bled very easily, and there was some irritation and dermatitis due to the escape of stomach contents.

The patient's condition is steadily improving; it is now two months since the first operation, and I can pass a bulb No. 30 (French scale), her appetite is good, and she has gained three pounds in weight.

The prognosis of œsophageal strictures caused by the swallowing of lye and other caustics, according to the experience of Professor A. C. Bernays, may be summed up as follows:

One third of all the patients die directly in consequence of the poison and the effects of the caustic. The second third are so severely affected that they die also after having undergone the most terrible sufferings from unsuccessful treatment, or as the result of perforations which cause mediastinitis, pleuritis, or peritonitis. Some die also of a putrid or septic bronchitis which leads to lobar pneumonia.

Many patients who have sustained only slight cauterizations from the swallowed alkali do not seek treatment for months or even years afterward.

Many cases are reported in which the patients got along quite well for years and only came to seek treatment when a piece of meat or other solid substance became lodged in the œsophagus and caused obstruction.

About a third of all cases seem to be curable, but even in them the constant use of bougies is necessary to maintain a sufficient caliber in the œsophagus. Von Hacker's table of a hundred cases proves that of fifty-five patients treated by œsophagotomy, gastrostomy, or both, thirty-three were cured and twenty-two died, a mortality of forty per cent. Forty-five were treated with bougies only, and of these twenty were cured—*i. e.*, kept alive—and twenty-five died, showing a mortality of fifty-five and a half per cent. There is no doubt that a large number who would otherwise die can be saved by operations.*

TUBAL MOLE PREGNANCY,

WITH SOME REMARKS ON THE DIFFERENTIAL DIAGNOSIS OF ECTOPIC GESTATION.

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THE following case the writer thinks possesses considerable interest from a clinical standpoint and presents a specimen not frequently seen described even in these days, when the medical journals teem with reports of cases of ectopic gestation:

Mrs. A., aged thirty-two years, married ten years, has two children, the youngest one two years old. She had an early miscarriage four years ago, otherwise had enjoyed the best of health and never suffered from any pelvic symptoms. A week before the expected menses, which were to appear about the 1st of November, she was suddenly seized with pain in the region of the right kidney, the pain radiating along the course of the right ureter. This was attended with frequent micturition. Her physician, Dr. C. W. Bohmfalk, who saw her soon afterward, naturally supposed the attack to be due to the passage of a urinary calculus. This view was strengthened by the fact that the attack passed off in a couple of hours. Her anticipated menstruation set in at the expected time, but the flow lasted only for about a day, instead of three or four days as usual. Thinking she had taken cold, her physician applied some remedies, and the flow set in in a day or two, and, though it continued for three or four days, the patient felt it was not quite as profuse as formerly. About a week later the doctor was sent for again on account of another sudden seizure of pain in the right side of the abdomen. The pain lasted four hours and was accompanied by several fainting spells. Following this attack the patient had some temperature (101° to 102°) and more or less pain in the lower part of the abdomen. This condition of things continued until two or three days before I saw her in consultation on December 2, 1894. At that time there was no fever and comparatively little pain. On examination, I could not determine anything definite, owing to a very thick abdominal wall and a sensitive condition of the vaginal vault. The uterus was found slightly enlarged, in retroversion of the first degree, and was sensitive on pressure, as were also the parametria. I made the diagnosis of probable rupture of an early tubal gestation with the subsequent development of pelvic peritonitis. As no urgent symptoms were present and the diagnosis was uncertain, I advised the continuance of the palliative treatment and rest in bed. If at the end of three or four weeks the pelvic condition had not entirely cleared up an examination under narcosis was to be made. Exactly three weeks later, early in the morning of December 23d, the woman had another attack of pain, but this time in the left groin, and had one fainting spell after another. In the interval of these three weeks she seemed to be progressing favorably and had been free of fever and pain. Her physician gave an opiate to relieve the pain and in a few hours she was fairly comfortable. He at once recognized that an intraperitoneal hæmorrhage had taken place, and requested that I should be called to see the case again. I saw her at 9 A. M. She then had a pinched appearance, but was not blanched. Had a pulse of 120 and a temperature of 101°. The abdomen was very much distended and was universally tender. A bimanual examination was now even more unsatisfactory than at the first time. We agreed upon immediate operation and the patient was conveyed to the Post-graduate Hospital, where I operated on her at 3 P. M. of the same day.

When the abdomen was opened a very unpromising state of things presented itself. The omentum was adherent to the symphysis pubis and walls of the pelvis and had to be ligated in sections and resected. The intestines were matted together by fairly firm adhesions. After careful separation of the adhesions with the fingers, I finally opened a fair-sized cavity partly filled with liquid blood and partly with blood clots of various degrees of organization. Some were dark and soft, others were whitish, very firm, closely adherent to the walls of the cavity, and had to be cut away with scissors. After cleaning out the cavity my fingers could reach the uterus in the posterior part of the pelvis. On the right side of the uterus lay an irregular mass of the size of a California pear imbedded in firm

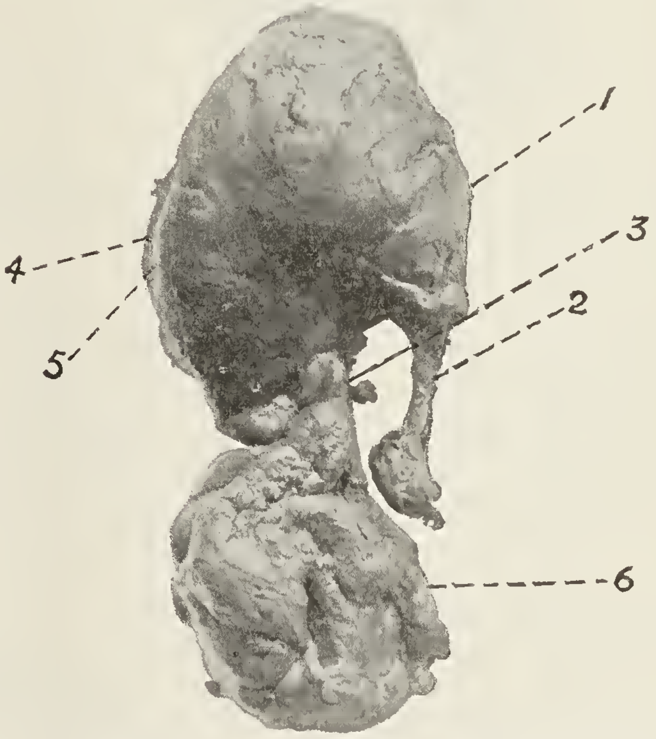

FIG. 1.—1, abdominal end of the tube; 2, band of adhesion; 3, uterine end of the tube; 4, wall of the tube; 5, fleshy mole showing at the incision through the tubal wall; 6, the ovary.

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* Von Hacker was the first to propose the method of passing a thread through the stricture and out through an artificial gastric opening, thus making an endless probe (*Wiener med. Wochenschrift*, 1886, Nos. 31 and 32).

adhesions. It was with great difficulty that the tumor was enucleated from its bed, ligated, and cut off. There was now a large, irregular cavity, presenting a dark, ugly appearance, and from its bottom there was considerable oozing of blood. The cavity was packed with a Mikulicz tamponade of iodoform gauze. The abdomen was closed in the usual way, excepting at the lower part, which was occupied by the strips of iodoform gauze. The patient made a smooth and satisfactory recovery.

The removed mass was found to consist of the dilated tube and the ovary hanging from it. On longitudinal section the tubal walls were found to be quite thin, the whole tubal cavity filled by a firm pinkish mass, which was quite firmly adherent to the interior of the tubal wall for its greatest part. The interior of this pinkish substance displayed a small, irregular cavity with several projections. Hanging from the side of the cavity, near the distal end, was a yellowish-white strand not unlike the blighted ovum seen in early cases of uterine mole. The lining of the small cavity was smooth and glistening. The under surface of the tumor was rough and uneven where it had been adherent to the pelvic floor. Several artificial tears in the tubal wall were produced by enucleating the tumor from its bed. Consequently the point of spontaneous rupture could not be definitely located.

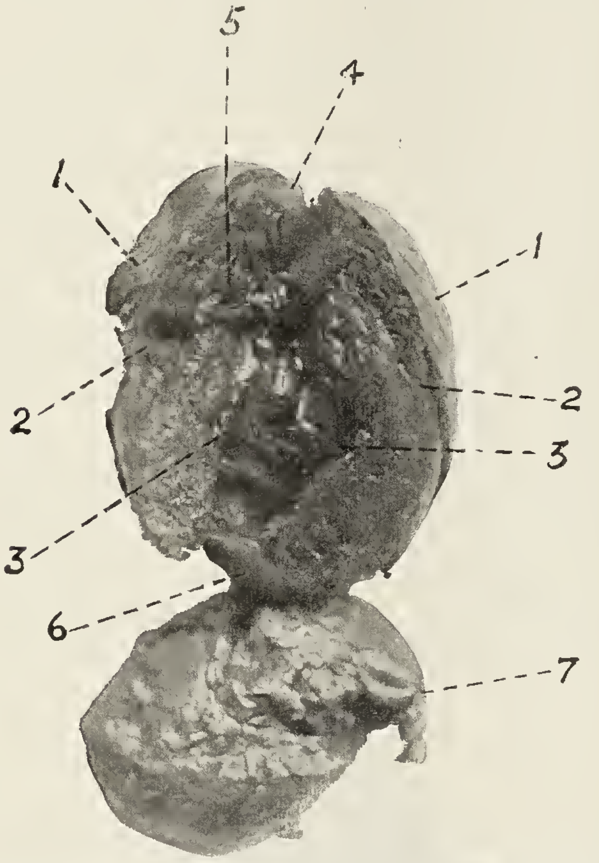

FIG. 2.—1, wall of the tube, slightly thickened; 2, fleshy mole; 3, amniotic cavity; 4, abdominal end of the tube; 5, a grayish-white strand (blighted ovum ?); 6, uterine end of the tube; 7, the ovary.

The points of clinical interest are:

1. The misleading character of the first attack.
2. The early hæmorrhage into the decidual membranes; this having probably taken place as early as the second or third week of gestation.
3. The recurrence after the death of the ovum of two attacks of intraperitoneal hæmorrhage at an interval of three and six weeks respectively.
4. The occurrence of ectopic gestation in a woman who presumably had healthy pelvic organs and who had given birth to a child at full term only two years before.

As we all know, the diagnosis of many cases of ectopic gestation offers no difficulties. There is a missed period, then irregular hæmorrhages from the uterus, usually attended with sudden attacks of great pain, and on examination a small semi-elastic tumor, shaped like an egg, but flattened in form, sensitive to pressure, can be felt closely attached to one or other side of the uterus, or it may be situated behind the uterus, and in some reported cases it has even been found in front of the uterus.

Another class of cases easily recognized is when a woman has passed one or more periods, believes herself to be pregnant in the natural way, and is suddenly taken with sharp pain and symptoms of acute anæmia and collapse. Examination will reveal a slightly enlarged uterus and a bogginess in Douglas's *cul-de-sac.*

These are cases which are not uncommon and in which there is little likelihood of making a wrong diagnosis. But occasionally, and I may even say frequently, cases are met with which puzzle the most experienced observer and the most skillful diagnostician. First in order of importance are cases of intra-uterine gestation which may be mistaken for extra-uterine. Occasionally we meet with a gravid uterus which, instead of enlarging uniformly, enlarges more at one part, thus giving rise to bulging and to the physical signs to a greater or less degree of a tumor attached to the uterus. Inasmuch as this phenomenon is more likely to occur in chronic metritis and in cases of adhesions, in which there is a tendency to abortion, the mistake in making the diagnosis of extra-uterine gestation is the more readily committed. A case in point is the following:

A young married woman had passed her period for ten weeks, when she began to have pain in the lower part of the abdomen and slight hæmorrhages. On examination I found a uterus the size of a gravid organ at ten weeks. The enlargement, however, was not uniform, there being a distinct bulging of the posterior wall which made the impression of a tumor the size of a hen's egg. Without taking any credit to myself I must frankly say the idea of ectopic gestation did not occur to me. I sent her to a well-known colleague, who is an excellent diagnostician, for the purpose of demonstration to a class of students.

He diagnosticated ectopic gestation. In a week afterward I was sent for, and on my arrival found the ovum with its envelopes lying in the upper part of the cervix. I removed it easily with my fingers. It was simply a case of intra-uterine gestation which had aborted at about the eleventh week from chronic metritis.

In my dispensary practice, where I examine during the year from two hundred and fifty to three hundred cases of pregnancy at various periods, it is not uncommon for me to meet with these cases of irregular enlargement of the uterus, simulating to a greater or less degree the physical signs of an ectopic gestation. The points of difference, however, are:

1. The apparent tumor is not so well defined as that of ectopic gestation.
2. It is not so sensitive as the tumor of ectopic gestation is likely to be.

I wish to lay special stress upon this cause of error in diagnosis, as I have not seen it stated anywhere before. I am certain many cases recorded as interstitial uterine pregnancy really belong to this class. To it probably also belong some cases recorded in literature in which treatment by electricity has converted a tubal into a uterine pregnancy.

Dr. M. McLean, at a recent meeting of the New York Obstetrical Society, related a very interesting case which forcibly illustrated this point in diagnosis. The patient had been four months pregnant. She had uterine hæmorrhages, attended with severe pains in the abdomen, fever, and a rapid pulse. On examination, a mass the size of the gravid uterus at the sixteenth week was found to the right of what was supposed to be the non-gravid uterus slightly enlarged. A diagnosis of ectopic gestation was made. On opening the abdomen it was found that the larger mass on the right side was part of the gravid uterus, which had enlarged irregularly and given rise to the physical signs of an independent tumor. This part of the uterus was adherent to the pelvis. The adhesions were broken up, and under the operator's eye the uterus assumed its normal shape. The abdomen was then closed, and the uterine gestation went on uninterruptedly.

The next condition of intra-uterine gestation which may be mistaken for ectopic is retroflexion with elongation of the cervix. The enlarged body lies low down in Douglas's *cul-de-sac* and the elongated cervix gives rise to the impression that it is the uterus lying in front of the tumor. I recall a case of the kind about six years ago which deceived many well-known specialists. At first the so-called tumor in Douglas's space was looked upon as an ovarian cyst.

The patient was about thirty years of age, married over two years, and had been sterile. The accompanying amenorrhœa did not excite suspicion, as that symptom frequently attends an ovarian cyst. A sound had frequently been passed into what was supposed to be the uterus, and it would enter to a distance of two inches and a half in a forward direction. The tumor kept on increasing in size, and the woman complained of pain and discomfort in the lower part of the abdomen. I lost sight of her then for some months, when one night I was sent for. On reaching the house I found her in bed and suffering from what I at once recognized as labor pains. The abdomen was the size of that of a gravid woman at full term. On examination, I again found the uterus-like body lying forward, and, though the pains were severe and had lasted several hours, the cervix was long and undilatable. I then supposed I had to do with an ectopic gestation at full term, and sent for the late Dr. James B. Hunter to consult with. After examining the patient, Dr. Hunter felt confident that it was a case of ectopic gestation at full term, advising me to remain with the patient overnight until she could be transferred to the Woman's Hospital in the morning. To subdue the pain I gave, with his advice, hypodermics of morphine, but in spite of these the pain continued. Toward morning the cervix began to open up, and in due time the woman was delivered of a good-sized female child.

Dr. Hunter at the time related to me a similar case—that of the daughter of a well-known physician of this city. The woman was operated upon, and the error only then recognized. Since then I have seen a number of cases of gestation in retroflexed uteri, which I might have mistaken for ectopic gestation had I not retained a vivid impression of the foregoing case.

The only author I have been able to find who lays particular stress upon this point is Fritsch.* He says: "Very difficult would it be to distinguish it [tubal pregnancy] from a retroflexed gravid uterus. In the latter case the uterus is strikingly soft, while the cervix may be so hard and elongated that it is taken for the whole uterus, and the soft body in Douglas's space for the extra-uterine sac. Whether such a case has been operated upon before the error was recognized I do not know, but my own experience convinces me that in several cases such a doubt could only be solved by a thorough examination under narcosis."

A third condition which might lead to error is pregnancy in one horn of a uterus bicornis.

Last winter a woman from Long Branch, N. J., came to the dispensary with the history of having passed her period twelve weeks, when she began to have pain in the right side of the abdomen and had irregular hæmorrhages. The woman was of a low order of intelligence, and all that could be gained from her was the foregoing, and that she was married eleven months, and had had a miscarriage at three months, eight months before. On examination, a spherical tumor, the size of a gravid uterus at the twelfth week, was found in the right side of the pelvis.

On the left side of the tumor was a body the shape and size of a normal non-gravid uterus. I at first thought I had to deal with a case of ectopic gestation, but some obscure points led me to the determination of keeping her under observation for a few days. During this time, after repeated and thorough examinations, I made out a uterus bicornis with pregnancy in the right horn. The two horns were widely separated, and were united only at the cervix. This conclusion was only reached after a sound had been passed through the common cervix into the horn on the left side for a distance of three inches. I learned afterward that the woman aborted a couple of weeks later.

A fourth condition which may give rise to a mistaken diagnosis is when there are symptoms of threatened abortion in a gravid uterus of early date, and on examination a tumor is found on one or other side of the uterus. Such a mistake, however, is of no great moment, for the tumor—let it be an ovarian cyst (as in a recent case of mine), or an ovarian or tubal abscess—is an indication for operative interference. The writer makes no pretense in the foregoing remarks of covering all the ground of errors in the differential diagnosis of ectopic gestation. He merely wishes to draw the attention of the general practitioner, who usually sees these cases first, to some of the more important conditions that may lead to error, and which have not received sufficient recognition heretofore.

Note.—After the foregoing had been put into type the following was received from Dr. Thomas S. Cullen, of the Johns Hopkins University, Baltimore:

"The specimen consists of a dilated Falloppian tube and of an ovary.

"*Description of Alcoholic Specimen.*—The tube is five millimetres in diameter at its uterine extremity, but, after passing outward one centimetre, it suddenly dilates, becoming three centimetres in diameter. It then gradually diminishes in size, and six centimetres from its uterine end is only one centimetre and a half in thickness. The fimbriated extremity is patent, but some of its folds are adherent to the ovary. Along the convex upper surface of the tube is a rupture five centimetres in length and three in breadth. Projecting through this rent is a reddish mass. The surface of the tube is covered by a few delicate adhesions. Its walls average one millimetre in thickness. The inner surface of the tube is smooth and glistening, and in a few places delicate folds of the mucosa are seen running parallel to the long axis of the tube. The reddish mass contained in the tube is six centimetres in length, four in breadth, and three and a half in its antero-posterior diameter. On section, its center is found to contain an irregular cavity two centimetres and a half long and one centimetre and a half in breadth. The walls of this are smooth and glistening, and are lined by a very delicate membrane. The lower surface of the mass presents a ragged opening nine millimetres in diameter. Around the margins of this opening are delicate shreds of tissue. The ovary is 3·5 × 2·5 × 2·5 centimetres in its various diameters, is covered by numerous adhesions, and is soft and yielding.

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* *Die Krankheiten der Frauen.* F. Wreden, Berlin, 1894, p. 486.

"*Histologically.*—The tube, at the point where it begins to enlarge, is covered by numerous non-vascular adhesions. The muscular coat is swollen, the nuclei of some of its fibers being of twice their normal size. The tissue between the muscle bundles is markedly infiltrated by lymphoid cells. The endothelium of the arteries of the muscular coat is swollen and has in some places undergone proliferation. The folds of the mucosa are flattened and distorted. In a few places, however, they have spread out near their point of origin. Their epithelium remains intact, their stroma cells are swollen, and there is considerable lymph-cell infiltration. These swollen stroma cells represent the rudimentary decidua. The folds soon lose their epithelium, and their stroma cells become lost in the blood clot which fills the tube. Near the fimbriated extremity the folds regain their usual form.

"The oblong mass occupying the cavity of the tube is to a great extent composed of blood clot. The outer surface of this, where it comes in contact with the folds of the tube, shows many aggregations of multinuclear leucocytes. Scattered throughout the blood clot are a few placental villi. These are composed of a delicate tissue containing a few cells which have oval or spindle-shaped nuclei. The outer surfaces of the villi are covered by two rows of cells which are somewhat flattened and have oval or spindle-shaped nuclei. In the vicinity of the villi are a few so-called placental giant cells. In the center of this clot is the cavity lined by the delicate membrane. The inner surface of this membrane is covered by one layer of somewhat flattened cells the nuclei of which are oval or round. The membrane itself is composed of a hyaline matrix containing a moderate number of cells whose nuclei are irregularly triangular or round. The outer surface of the membrane is covered by two distinct layers of cells; the one nearest the membrane has spindle-shaped or oval nuclei, the outer one consists of a protoplasm everywhere presenting little knoblike outgrowths which contain masses of oval, deeply staining nuclei scattered irregularly throughout them. In some places these knoblike masses have been cut off and form the so-called placental giant cells. This membrane is the chorion. The ovary is covered by numerous non-vascular adhesions. Its stroma contains several Graafian follicles and corpora fibrosa.

"*Diagnosis.*—Tubal pregnancy. Slight peri-oophoritis. No trace of the fœtus could be found."

127 East Sixty-first Street.

The Separated Milk Game.—At Westminster, on September 27th, the St. George's (Hanover Square) Vestry, by summons, prosecuted Tom Felie Stevens, of 52 College Place, Chelsea, before Mr. de Rutzen, for selling milk from which the cream had been abstracted to the extent of thirty-five per cent. Mr. Herriott, the vestry's inspector, bought a pint of milk for a penny three farthings from a man in the service of the defendant out with a barrow. After the purchase was completed the salesman drew the inspector's attention to the fact of a label pasted on the barrow with the words thereon, "Pure separated milk." He also said that new milk could not be expected for the price. Mr. de Rutzen told the defendant that he had not brought himself within the meaning of a particular case decided, and fined him 40*s.* and 12*s.* 6*d.* costs.—*Food and Sanitation.*

THE MECHANICAL TREATMENT OF POTT'S DISEASE OF THE SPINE, IN THE SUBACUTE OR CONVALESCENT STAGE.*

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Physiological rest of the spine is possible only in the recumbent position, and during the acute or soft stage of Pott's disease this position, with adjusted pressure and, if necessary, traction, should be uninterruptedly maintained.† But when for several months the deformity has shown no increase, the patient has eaten and slept well, enjoyed good general health, and, most important, the spine outside the diseased area has regained its flexibility, the convalescent stage may be considered as entered upon, and recumbency may be gradually and carefully exchanged for the upright position. This transition involves the bearing of weight, and that frequently at a mechanical disadvantage because of deformity. It involves, also, a constant subjection to adverse muscular action and external traumatism. It is therefore a period of great danger, and it is well for the friends of the patient to understand that, however long it may have been delayed, the upright position is always an experiment, and that it may be advisable at any time to return to recumbency.

If, on the flexible back of a child, the distance along the spine from the base of the skull to the sacrum be measured in the upright and in the flexed positions, it will be found that in the latter it is longer by several inches. This increase represents the total separation of the tips of the spinous processes. So far as antero-posterior motion is concerned the spine may be regarded as a series of short bones hinged together. The spinal cord is secured in its canal throughout the whole length by the nerves. There is no slack in the lower nerves to be taken up by traction on the cord, but, on the contrary, they extend from their origins directly downward before emerging from the canal. If the axis of motion between these short bones were behind or in front of the cord the bones would be separated and the cord subjected to dangerous stretching during either posterior or anterior flexion. It is probable, therefore, that the axes of antero-posterior motion pass transversely through the neural canal. It is a matter of common observation that in Pott's disease symptoms denoting lesion of the cord or its membranes have no fixed relation to the acuteness or amount of deformity; and pathological specimens show that whether the kyphos be more or less angular, the caliber of the canal is not usually affected. The axes of deformity must therefore be the same as those of normal antero-posterior motion. The lateral deviation which may have been observed in the acute stage is to be regarded as an irritative muscular symptom rather than a unilateral loss of bone, and is gradually lost in the antero-posterior deformity characteristic of this disease.*

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* Read before the Orthopædic Section of the New York Academy of Medicine, January 18, 1895.

† Recumbency in the Treatment of Pott's Disease. *New York Medical Journal*, October 21, 1893.

In the application of mechanical support to the upright spine, if we could grasp the spine directly we would immobilize it and apply forward pressure to the real or prospective kyphos; backward pressure to the parts above and below, with traction and counter-traction. But as we can not, it is necessary to study the nature and relations of the parts through which our mechanical remedies must reach the spine. The relative merits of traction and leverage have been frequently discussed. It is, however, evident that force or support, whether applied in a horizontal direction as leverage or vertically as traction, can act on the spine only by a motion the reverse of that of the deformity and around the same axes. And until this curvilinear motion has reached its limit traction can not tend to distract. Even then the tractive force can not be equal to the weight of the parts above the diseased area plus the resilient force of the ligaments and muscles binding the vertebræ together, for this necessitates a pressure greater than the skin can bear. It is then simply a question of utilizing every square inch of available body surface for the application of both leverage and traction. Let us consider the areas of possible application for remedial force or support. Pressure forward is to be applied to the kyphos, or at the situation of a possible kyphos. Pressure backward may be applied to the forehead, chin, thorax, shoulders, and anterior edges of the iliac bones. Pressure upward, or traction, may be exerted on the chin, back of the head, and under the shoulders. Pressure downward, or counter-traction, is applicable to the shoulders, iliac crests, and the projecting gluteal muscles. The question of pressure upon the abdomen made with a view to spinal support or correction demands careful consideration. By virtue of the arrangement of layers of the abdominal wall it does, under conditions of muscular tension, have a certain degree of cylindrical firmness. When there is a projection forward of the lumbar spine and abdomen accompanying a dorsal kyphos, if the lumbar spine is very flexible it may be somewhat straightened by backward pressure upon the abdomen; and abdominal pressure may serve also in extreme deformity to supply, through the viscera, some degree of internal support for the chest wall and also for the spine. But the abdomen is like an air cushion in front of the spine, and pressure applied to it is not transmitted in a straight line, but is exerted, more or less equally, in every direction. Internal tension in the thoracico-abdominal cavity is necessarily exerted somewhat upon the diseased spine, which is a weak spot in the parietes, and tends thus to increase its pressure against the external support. And as instrumental support is limited entirely by the pressure-toleration of the skin, internal tension becomes a consideration. But abdominal pressure is far more serious, because of its interference with the circulation and respiration, and its tendency to produce visceral displacements and hernia.

In cervical or high dorsal disease the trunk grasped as a whole, and the head, respectively afford good means for the application of remedial force or support, both vertical and antero-posterior. The shoulders, although indirectly and loosely attached to the spine, may be made to sustain to some extent the weight of the parts above them. Axillary support from the pelvis is also of some relief to the spine below the shoulders.

In mid or upper dorsal disease a very prominent part of the deformity is that of the chest known as pigeon breast. Its mechanism is probably this: The upper ribs are more horizontal than the lower, which incline downward from the spine. As the vertebræ above the apex of the kyphos drop down, they tilt downward the upper ribs, which in turn tend to carry down the upper end of the sternum. At the same time the lower ribs are tilted upward and their normally greater inclination downward with their length causes the lower end of the sternum to be carried forward. Thus the forward inclination of the sternum is increased, and as this bone is fixed at its ends the front extremities of the intervening ribs are also fixed. Projection backward of the vertebræ serves to draw on these ribs so that the backward projection of the latter at their angles, or the forward projection of the spine into the chest, is diminished and the two sides of the back become like the sloping sides of a roof, of which the spine forms a curved ridgepole. The chest is elongated in the posterior direction and contracted laterally. This change is usually most marked in the lowest part. When, as the result of great spinal deformity, the entire trunk is considerably shortened, the chest sinks down upon the abdomen. I have watched the respiration in such a case and observed that as the diaphragm contracted the central part resting on the abdominal organs became the fixed point, and the contraction raised the chest and head. Under such circumstances the muscular and tendinous structures connecting the lower front of the chest to the front of the pelvis are relaxed and no longer serve to tie down the sternum. The posterior surface of this bone and the adjacent costal cartilages are now resting upon the abdominal contents, and this weight of the superincumbent parts tends to increase the abnormal forward inclination of the sternum. When the upper dorsal spine is inclined forward, the head, to preserve the equilibrium, is drawn backward, and thus the deformity is made more conspicuous.

In dorsal or lumbar disease the mechanical problem is to apply to the trunk itself forces acting in different directions; and as backward pressure can reach the spine only through the medium of the chest and pelvis, the foregoing analysis of thoracic deformity should be kept in mind; for, by a direct backward pressure on the sternum with forward pressure upon the kyphos, the lower ribs are pressed downward in front, and through the ribs as levers a powerful corrective force is brought to bear upon the spinal deformity.

The theory upon which pressure is made on the kyphos has been that of keeping the diseased part as nearly as may be in its natural relations with the parts above, and below. But in dorsal disease it is evidently important to keep it in its normal relations also with the parts on either side. This is possible only by the use of direct backward counter-pressure applied to the front of the chest. Such pressure has no injurious effect upon the thoracic respiration, as respiratory movements of the ribs are chiefly performed by a rotatory movement around a straight line uniting the vertebral and sternal extremities; and in so far as the pressure tends to shorten this line and restore the convexity of the ribs, it increases the respiratory function. The evils of circumferential pressure applied to the trunk are self-evident. Besides interfering with respiration and producing internal tension with its consequences mentioned, it induces a permanent contraction of the lower thorax and a small substernal angle. This has been held by such eminent authority as Laennec to be a predisposing condition to phthisis pulmonalis. In a patient with a tuberculous bone lesion it is a very serious matter.

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* Lovett. *Trans. of the Am. Orthop. Assoc.*, vol. iii, 1890, p. 187.

In the treatment of lumbar disease no new principle is involved. It is still a question of exerting anterior pressure on the kyphos, with posterior pressure above and below. Here the superior mass is so great as to make traction of little or no service.

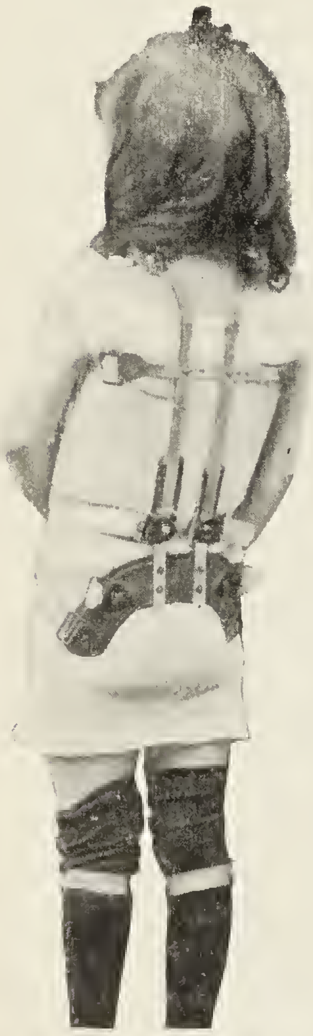

Fig. 1.

The apparatus which I employ to meet these mechanical indications is here presented. Posteriorly it is the Taylor brace (Fig. 1) with some unessential modifications, not my own, made with a view to simplifying it. Instead, however, of securing it to the trunk by a soft apron, which exerts a large amount of circumferential pressure and a minimum of posterior pull, I apply a rigid support in front (Fig. 2), and the trunk is sandwiched between two braces, which are drawn directly toward each other. For the reasons given above I have avoided, as a rule, abdominal pressure. An additional reason for leaving the abdomen uncovered in front is that distention from food, gas, etc., would tend to lift the brace from those parts where its pressure is most efficient. Commencing with the lower end, the anterior brace presents a steel band passing across the abdomen and well around the sides of the pelvis, as low as is possible without its being displaced by the thighs when the patient sits. The anterior-superior spines are protected by thick pads of kersey and leather, and the central part of the band is arched so as to prevent pressure on the abdomen. It is essential that the band should bend sharply around the front edges of the ilia and fit tightly against the sides of the pelvis for about an inch. By means of straps at the ends of the band it is connected with the hip band of the posterior brace, and the pelvis is literally clamped between the two bands, which nearly meet at the sides. At the location of the anterior-superior spines two flat uprights are riveted at right angles, or, if the abdomen is very protuberant, they are directed outward from the lower band. The curving of this band permits the uprights to be approximated above. They extend upward and inward along the abdomen and chest to the infraclavicular spaces. At the level of the axillæ they are crossed by a flat bar, which passes across the front of the chest and nearly through the axillæ at each end. No. 16 spring steel is a good material for the construction of all parts. Near the level of the chest band three holes, drilled three eighths or half an inch apart, will save trouble in placing the band, which should be fastened by iron rivets. The abdominal band should be an inch, the others half an inch, wide. These dimensions are for children. It will be more convenient to have the separate parts covered with leather and then fastened together. In measuring one is very apt to locate the chest band too high, as well as to make the whole front brace too tall. It is very instructive to note how far the anterior chest wall will, notwithstanding all possible pressure, sag down in the upright position. It demonstrates strikingly the mechanical advantages of the supine position with reference to traction. At the upper ends of the uprights are straps which pass over the shoulders to buckles on the shoulder pieces of the posterior brace, and from the ends of the chest bands straps running backward buckle to the cross-piece of the brace. This cross-piece extends to the posterior edges of the axillæ. Behind the upper part of the apparatus is a stiff leather perforated chest piece, which is secured to the uprights and covers the front of the thorax as far down as the ensiform cartilage. In some cases I have supplemented this by bands of aluminum or leather passing from upright to upright across the abdomen, but, for reasons given, it seems, as a rule, best to leave the abdomen free. Near the lower ends of the uprights are web straps (commonly padded) which extend over the crests of the pelvis to the buckles on the spinal uprights behind. These and the hip band of the posterior brace afford all the vertical support anatomically possible. The ends of the bar passing through the axillæ may be padded as axillary crutches. Or from the ends of the shoulder pieces the regular round, padded shoulder straps of the Taylor brace may pass through the axillæ and back to a second cross-piece placed just below the first. The perforated chest-piece can be made to fit accurately by bandaging it while wet to the chest, oiled silk being interposed. In high dorsal and cervical cases the head support which I prefer is Taylor's, without the ball-and-socket

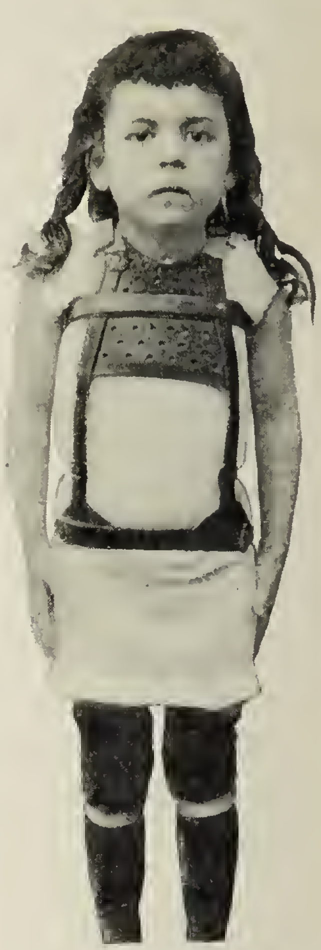

Fig. 2.

joint, the slipping of which is a continual annoyance. In its place I use a pivot, flattened below, to slide in a keeper fastened to the uprights. This pivot has a soft neck which may be bent easily in any direction. This is, I believe, the original device of Dr. C. F. Taylor. Thus constructed this combination of anterior and posterior braces constitutes a skeleton support, to which parts may be added to meet the individual requirements of a case or the special views of the surgeon. If a greater area of lateral support be required it may be secured by a series of straps from the anterior to the posterior uprights. I think, however, that in Pott's disease lateral curvature from muscular spasm is best treated by recumbency.

It is claimed for this combination:

1. That all the available space is utilized for the application of force, both of leverage and traction.
2. The force applied for the purpose of leverage is expended entirely in the antero-posterior direction.
3. The anterior and posterior braces nearly meeting at the sides, lateral support is amply provided in every case where recumbency is not needed.
4. The grasp of the trunk, as a whole, for the purpose of counter traction in disease of the upper spine is as complete as possible.
5. There is an absence of circumferential pressure, so that the abdominal, diaphragmatic, and lateral thoracic movements are unobstructed.
6. The directly backward pressure of the leather apron serves:

(*a*) To antagonize any tendency to an anterior protrusion of the chest.

(*b*) To exert through the ribs a leverage upon the diseased vertebræ.

(*c*) To preserve or restore the normal postero-lateral curvature of the ribs, and so enhance the respiratory functions, and to keep the diseased spine in normal relations to the posterior chest wall on either side.

7. The back or any other part of the trunk can be at any time readily inspected.
8. The apparatus can be easily modified and pressure on any part accurately adjusted.
9. It is so simple that any blacksmith can make it.
10. The functions of the skin as a respiratory organ are respected.

I use also rubber heels in conjunction with this apparatus to minimize concussion, diminish direct traumatism, and save reflex muscular action.

The question, "How long should a brace be worn?" is difficult to answer, even in each particular case. On the one hand, increase of deformity, or the evidence by face, attitude, or gait that the patient is not getting the proper support, should be the indication for a return to the recumbent position.* On the other hand, the continued absence of symptoms of active disease, the general activity and well-being of the patient, afford the best possible reasons for the watchful and gradual removal of support.

498 Bedford Avenue.

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* Recumbency in the Treatment of Pott's Disease. *New York Medical Journal*, October 21, 1893.

THE HISTORY OF THE TREATMENT OF SPONDYLITIS AND SCOLIOSIS

BY PARTIAL SUSPENSION AND RETENTION BY MEANS OF PLASTER-OF-PARIS BANDAGES,

*Together with the Present Status of this Plan of Treatment before the Profession of the World.**

By LEWIS A. SAYRE, M. D.

(*Concluded from page 340.*)

Henry M. Sherman, San Francisco: "I am very glad indeed to submit to you, my old master in my art, my experiences and conclusions in regard to the plaster-of-Paris jacket, and to let such of them as merit it reach the profession through your paper.

"I advance the following propositions:

"1. In cases of vertebral tuberculosis, when the lesion is below the ninth dorsal vertebra, the treatment by 'partial suspension and retention by plaster-of-Paris bandages' is incomparably the best, always excepting those cases in which for special and obvious reasons--hernia, abscess, sinuses, etc.—no plan which contemplates the rigid enveloping of the body can be allowed. I am sure this contention can be made, though I have been obliged to modify my earlier views of the 'work' of a jacket both as a splint and as a support.

"2. In cases of vertebral tuberculosis, when the lesion involves the eighth and ninth dorsal vertebræ, the choice lies between the jacket and a brace, the former being suitable for milder cases, and those in which a compensatory lordosis could be easily developed both above and below the kyphos.

"3. In cases of vertebral tuberculosis, in which the lesion is above the eighth dorsal vertebra, the plan of treatment should include carriage of the head by apparatus, and in all such cases the supporting point of the mechanism is the pelvis, which is embraced by a jacket of plaster of Paris or a pelvic belt of leather. For the support and carriage of the head I prefer the steel fork and aluminum chin collar which I have described.

"4. In cases of scoliosis the plaster-of-Paris jacket as a rigid all-embracing splint on the trunk is the most satisfactory means to hold and make permanent the correction gained by gymnastics, forcible correction of deformity, etc.; but its function is purely that of a splint—*i. e.*, retention, not correction—and, like all splints, muscular weakness of the muscles corrected and aided by it results from its too exclusive and too prolonged use. I am myself working with a fair amount of success on the lines of these proportions. Of course, I can not claim them to be universally applicable, and have myself exceptions to them in my practice, but they are a more than good set of working rules."

R. H. Plummer, San Francisco: "My experience in this method of treatment reaches through a period of fifteen years, during which time I have applied it not only in private practice, but in Cooper Medical College Dispensary as well, and it affords me great pleasure at this time to testify to you in no uncertain terms my appreciation of the merits of the method of treatment. . . . That the method has not given unqualified satisfaction to all who have attempted to use it goes without saying. Failures arise from various causes, as improperly selected cases (incurable); improper materials used, as unsuitable shirts; unskillful application of the bandages; and a general injudicious management of the case as to exercise, etc. All these deficiencies may be summed up in four words—viz., 'ignorance of the method.' If all who essay to use it would first familiarize themselves with your writings upon the subject, and especially if they could avail themselves of the benefit of your personal instruction as to details, etc., the method would not suffer at their hands, and their patients would invoke blessings on their lives."

L. C. Lane, San Francisco: "I fully approve of your method of suspension and retention by plaster-of-Paris bandages in the treatment of spondylitis and scoliosis. I regard this plan of treatment as one of the most important additions made to surgery during the present century."

S. H. Pinkerton, Salt Lake City: "In the treatment of spondylitis I consider the partial suspension and a properly applied plaster-of-Paris jacket (with its modifications) superior to all mechanical appliances.

"In scoliosis I have had very good results with a removable plaster of-Paris jacket (or corset) together with gymnastics."

William E. Wirt, Cleveland: "It has been my experience as an orthopædic surgeon to have applied at least two hundred, possibly double that number, of plaster-of-Paris jackets to cases of Pott's disease. I consider this jacket a great boon to these unfortunate children, especially when the disease occurs among the poor and ignorant—in fact, nothing can take its place. Among the wealthy and intelligent, and more especially those whom we may trust to carry out directions, I have found a modified Beely corset to be more satisfactory. In certain cases of Pott's disease, where I had ordered a spinal brace, I have found that no amount of fitting and adjusting would make it comfortable to the patient, and in such cases would have to return to plaster jacket or felt corset.

"In scoliosis I do not favor the plaster jacket as a measure of treatment, but I simply use it as a means of getting a mold which I still further improve in shape (over that gained by suspension) before molding upon it a felt corset."

S. A. Wright, Manchester: "In reply to your question:

"1. I have never used any fixed apparatus for scoliosis.

"2. For caries of the mid and lower dorsal and lumbar region I have always used, and do still use, Sayre's jacket largely, but not in cases where there is an abscess, nor in cases where the disease includes the upper dorsal region. I am not strongly impressed with the value of any form of jury-mast, and where the jacket is inapplicable I prefer bed or a metal spine spring."

C. H. Golding-Bird, London: "*Re Scoliosis: (a) Plaster Bandages.*—After a continued trial of the bandages in these cases I abandoned them; not that they did not at first give the greatest support, keep the spine straighter, allow of the chest being kept (in bad cases) more expanded, but because I found these results to be but temporary. In spite of the exercise with the tripod I did not find that the musculature of the trunk improved to the degree requisite for the patient's maintenance, as the improved position is to be obtained rather by the best possible development of the muscles (whereby the wearing and wearying muscle pain attendant on these cases is abolished and the patient rendered able to be about with comfort) and not by the most perfectly shaped back, if the muscle tone can not at the same time be maintained to the full. I less and less, therefore, use supports, preferring to throw the onus of maintaining an improved position on the patient's own muscles, being careful to give alternately with calisthenics such rest as in each case is needful.

"Where patients are already cripples and a lifelong support is necessary, then doubtless the jacket gives the maximum of comfort; but in practice I have found, in every station of life, that where such support is requisite the patient after a time prefers an apparatus (felt or otherwise) that can be removed for toilet purposes to the plaster that is immovable and that has to be reapplied at stated intervals, even at a loss of some of the support that the bandage gives.

"*Re Scoliosis: (b) The Tripod Exercise.*—This can hardly be improved upon; and it remains the type of what technical calisthenics in these cases should be.

"With due attention to the patient's environment of place and habit, the muscles soon develop and harden under its proper use; and it brings the greatest number of trunk muscles into play at a given time, with a minimum of fatigue; in this surpassing other and more popular forms of exercise.

"Even in confirmed scoliotic cripples, I have seen the daily expansion of the chest by the tripod exercise improve the heart's action and materially aid in the restoration of the patient's health, by mechanically permitting the better oxygenation of the blood and the freer action of the heart.

"I consider it of more value than the plaster jacket in the Sayre method of treating scoliosis.

"*Re Spondylitis: (a) The Plaster Jacket.*—In spondylitis the jacket fulfills all that its inventor claimed for it, allowing patients to be about and in the open air instead of being kept always on their backs; and they recover, *where the jacket is efficiently and sufficiently often applied*, with as slight deformity as though they had been kept lying down all the time.

"I know of no disability attending the employment of it important enough to prevent its universal application; but at the same time, I have never known any treatment introduced into surgery that was less understood, or about which less trouble was taken to understand it practically.

"While I still employ it in public practice, it is many years since I did so in private. The agitations of those who had 'vested interests' in spinal cases, and the prejudice of the public against an appliance that could not be removed for the bath, in a few years caused it to fall into disrepute, and save for hospital cases I do not think it is ever now employed.

"The public refused to regard the benefit the jacket afforded as in any way weighing against any slight disagreeables it might possess; and an otherwise intelligent mother informed me once that she declined to go on with a treatment in which a surgeon's personal attention was necessary at intervals of two or three months, when her instrument-maker could supply her with a steel and leather support that would last for years! And this may be taken as a fair sample of what many said or implied.

"When I add that leading instrument-makers advertised in the past that they put on 'Sayre's jackets' for the profession, and also that leading surgeons sent their cases to them for the purpose, and when I know of my own knowledge that the jackets were nothing but stiff plaster belly-bands, rapidly excoriating the flanks, and worse than useless, and their uselessness made known as demonstrative of the futility of 'Sayrism'—it is not surprising to find that the plaster jacket had to give way to steel, leather, and felt, which materials now reign supreme!

"However, the lesson taught by Sayrism has not been lost entirely; felt jackets, though an imperfect support, more nearly fulfill the principles of that system than the old steel and leather supports; and even those who still use the latter endeavor to get them more body-fitting than formerly.

"*Re Spondylitis: (b) The Tripod Exercise.*—I only use the tripod for the application of the jacket. In a stage when exercise might indeed somewhat unfold the spine by extension upon recently formed reparative material, I should consider its use as an exercise unwise; while where consolidation has occurred, it would be useless.

"The exception I make is in the case of deformity, after consolidation, being such in the dorsal region as to cause the chest to assume the position of deep expiration; then exercise, by acting through the thoraco-humeral muscles, undoubtedly, as in old scoliotics, gives for the time free heart-play and better mechanical opportunity for the oxygenation of the blood, and thus the general condition of the patient is much improved."

Edmund Owen, London: "For a good many years I used suspension in the treatment of children with Pott's disease when applying plaster-of-Paris jackets; but, in due course, experience showed me that I got equally good results by applying the jackets as the child stood on the ground, the arms being held up out of the way. I am not a believer in extension of a carious spine. I found the plaster-of-Paris-jacket treatment cheap, handy, and efficient; but, as a kind Providence has removed me from further charge of out-patients, I no longer have occasion to apply the jackets personally. Still, I have firm faith in them, and constantly get them applied by my house surgeons and dressers in Pott's disease.

"I consider their use in lateral curvature (curvature with rotation) to be injurious in childhood; though I freely admit that in the case of some limp and crumpled adults with lateral curvature, a gypsum corset may be applied with great advantage, especially if the patient be suspended during the application. Indeed, without suspension the jacket would be of little avail."

MacNaughton-Jones, London: "In reply to your letter I send you the photograph of the first patient on whom a plaster-of-Paris jacket was put in Ireland in the year 1876. It was adjusted by me prior to your visit to Cork that same year. Since that date to the present I have practiced the treatment there advocated by you, so far as suspension and support are concerned. Necessarily of late years my work has not carried me so much into this field of surgery as it did in Ireland. As you know, I published the results of my cases up to a certain date in the *Dublin Monthly Journal of Medical Science.* You want to know what is my present view of the results of your plan of treatment in spondylitis and scoliosis.

"*First, Spondylitis.*—I regard the *plaster* jacket *well* adjusted in the early stages of the disease as the most valuable support to the diseased structures I know of (I include in this statement all the hybrid deviations which imitators of your method have adopted), so long as the integrity of the support is secured and maintained. This, so far as I can judge, is essential. The head support I also include in this view. The treatment in the early stages should be, I hold, combined with a fair amount of rest in the horizontal position and all the other hygienic and locomotive aids which are so essential in this treatment.

"Given a fair case and prudent supervision with judicious change of the support, it is the treatment which I should adopt in the case of a child of mine affected with the disease. Certain cases of spondylitis, in which general tubercular affections of the various bones are present, can be *cured* by no treatment I know of. Deformity is inevitable, do what we will. I do not suspend in Pott's disease save in placing the jacket on the patient. This latter is no hindrance to treating the complications of the disease. This I have proved many times. In the latter stages, when the support has done its work, I resort to the well-fitting poroplastic jacket with steel stays and the softened portion for the affected area. This I can combine with light arm supports and the head rest if necessary. This is my view of the plan you advocated, and which has stood (though so often twisted and turned for some faddist's personal advertisement as hardly to be recognized as yours) the test of the last twenty years. If the principle has failed, it has been from trial when no cure was possible, in cases in which nothing was to be expected from any plan of treatment, or it has been carried out ineffectually and imperfectly.

"*Scoliosis.*—I can not speak too warmly of my experience of the suspension treatment in scoliosis. I may have departed in a degree from my original practice in *always* employing the plaster jacket, perchance unwisely in some instances. I now rarely, in the cases that I am consulted in, use plaster. I use the poroplastic felt, carefully molded and applied under suspension, in all cases. I support the jacket with stays of steel where required, and combine at times light axilla props. I invariably insist on the practice of suspension by the neck at home, and combine the treatment with gymnastic exercises and the usual rules of hygiene and diet followed in such cases. I can unhesitatingly say that such treatment gives but the best results. I have never, since I put on the jacket I send you the photograph of, resorted to any other mode of treatment in any form of lateral curvature. I believe it to be the best. As a general rule, it has given me such good results that I have never been tempted to go outside it. Even in old and irremediable cases it has given the greatest comfort and *relief* from pain.

"In conclusion, let me, as one who has on many an occasion reaped the benefit of your inventive skill and sound practical teaching in this branch of orthopædic surgery, as *in many others*, pay no mere flattering tribute to the system of treatment you so graphically introduced into this country. But the real testimony to its worth is one you may neither see nor hear. It is the unrecorded and unspoken gratitude of the many whose lives have been spared, whose sufferings have been mitigated, and deformities removed through your own work, and not of those who have followed in your footsteps. This is true of the past, it is equally so of the present, and it is my belief it will be so in the future."

E. Luke Freer, Birmingham: "My experience with plaster-of-Paris jackets dates from Dr. Sayre's demonstration in Birmingham some fifteen years ago, one of the patients being supplied by me from the Birmingham Royal Orthopædic Hospital, where I then held the post of honorary assistant surgeon. In that capacity I applied *every* plaster jacket for my senior colleagues (in those days everything 'spinal' was turtle-shelled indiscriminately), and I might almost have been dubbed 'honorary plasterer' to the hospital. As might have been expected, the results were not universally satisfactory. As honorary surgeon, I have dealt only with my own cases, but my applications have numbered over three thousand altogether, and I am now as firmly convinced as ever of the superiority of the plaster cuirass over all other methods for the treatment of spondylitis; where recumbency was necessary in cases of abscess, etc., I have found Thomas's double hip splint very serviceable. In high dorsal and cervical caries I have preferred Furneaux Jordan's modification, and in some cases Thomas's collar, to the jury-mast, as giving more complete fixation. In scoliosis (unassociated with spondylitis) I still use the cuirass, but only when the patient has to pursue his or her ordinary vocations, or at the commencement of treatment, until the muscles and muscular sense have been sufficiently re-educated and strengthened by systematic and harmonious kinetics and the correction of faulty positions, never when reclining or performing the exercises. I consider the constant use of the cuirass prejudicial in these cases, and I always use the divided cuirass with elastic lacing in scoliosis. I am convinced that the opposition to the cuirass has been mainly due to improper application, and the omission of the long 'reflected' vest which meets all objections on the score of 'chipping.' Elaborate instruments with ratchets and pads I consider are worse than useless—the tortures of the Spanish Inquisition would seem to be the models on which some of them were fashioned.

"If I may be allowed to speak freely, I think that much of the present antagonism to the cuirass is due to the fact that

Professor Sayre, in his excellent and explicit monograph, was rather too sanguine in stating that *any* practitioner could apply it. Many of the so-called plaster jackets I have seen were simply burlesques of the principles involved, and in this country the application has most frequently been relegated to nurses. I know of no operation, however, that depends more on strict attention to minor details for success, which details are only to be learned by experience. Poroplastic I have entirely discarded, as it is impossible to get it perfectly and accurately molded to the body, even where the deviation from the normal is slight. Again, it has nothing to recommend it even on the scores of expense or weight. Several of my cases have worn the divided plaster cuirass for more than twelve months with perfect comfort, the weight being no more than poroplastic. I continue to use partial suspension also in addition to other kinetics, especially in high dorsal curves and torticollis, with the best results."

W. Bayard, St. John, N. B.: "It affords me much pleasure to say to you, and I do so in all sincerity, that I consider your 'plaster jacket' a boon to the profession and to the unfortunate sufferer with spondylitis. I have used it largely for many years—indeed, I use none other—and I can point with pride to individuals walking our streets who, but for Sayre's jacket, would in all probability be in their graves. I have added various materials to the plaster with the view of rendering it less brittle, but I have found its porosity injured, so that I now use nothing but the plaster.

"In some instances I have inserted strips of steel, such as are used in ladies' corsets, between the bandages with benefit. When applying the bandage I always allow the patient's feet to touch the floor, and if he complains of pain in his legs I cease suspending, and I open the jacket for ablution purposes.

"I prefer the plaster jacket for scoliosis to any mechanical application I have seen, but I never trust to it alone, recommending such muscular exercises as the particular case demands.

"I may mention a traumatic case where the jacket answered admirably. A man was sitting under a heavy wheel when the supports broke; the wheel caught him on the shoulders, doubling him forward. I saw him immediately after the accident; he had no power in his legs, but yelled with the pain in them. I had him placed face down, with a man at each shoulder and at each foot, directed to make steady extension, while I made gentle pressure upon the prominence produced by the altered position of the vertebræ. In a moment or two the power of motion returned and the pain ceased. He was taken home on a door; the next day I placed your jacket on him, and kept him in bed ten weeks. He wore a jacket for two years, after which he was as strong as ever."

J. Nicolaysen, Christiania, Norway: "I have used your treatment of spondylitis and scoliosis by partial suspension and retention by plaster-of-Paris bandages since the time you first brought it forward for the public.

"I have always been very content with the results of this treatment; the results have naturally been more or less perfect after the condition of the patients, especially after the stadium of the diseases, when the treatment could be instituted; but always the condition has been bettered, in most cases for the life; I know not of any better treatment."

Enrique M. Porto, Havana: ". . . In conclusion: In angular curvatures of the spine the Paris-plaster bandage is the only and exclusively local treatment, and in light lateral curvature partial suspension and exercise combined is a good treatment, but I find it better if aided by retention of body by plaster-of-Paris bandage."

CORK, IRELAND, *November 30, 1894.*

Since 1877 I have treated most of my cases of spondylitis by means of the plaster-of-Paris jacket, using very slight extension, always taking care not to break up or injure any bony adhesion of the spinal column.

The great majority of patients treated in this manner did well. When this treatment failed, rest on a couch, together with some form of extension, was adopted, and after a time the plaster-of-Paris jacket was reapplied.

With regard to scoliosis, I have had the great privilege of seeing many cases treated by Professor Sayre himself. I have adopted and highly approve of his method of treatment by extension, using the exercises recommended by Dr. Reginald Sayre, and the cuirass as a support during the day in severe cases. But I have substituted the felt poroplastic jacket for the plaster cuirass, because I found that, owing to the extreme dampness of our climate, I was not as successful with my plaster-of-Paris work as Dr. Sayre had been with his.

NICHOLAS GRATTAN.

H. Hingston, Montreal, Canada: "In those cases of curvature arising from disease when uniform and comfort-giving support is of advantage, no surgical appliance, however well fashioned it may have been, gives me anything like the satisfaction I have had in the use of the simple and inexpensive support Dr. Lewis A. Sayre has given to the profession."

PITTSBURGH, PA., *December 31, 1894.*

Dr. Lewis A. Sayre, New York:

DEAR DOCTOR: I find that I will be unable to have the paper, now in preparation, upon Spondylitis and Scoliosis, completed in time to send you an advance copy, as per promise. It will not likely, however, contain anything that would be of particular value to you in the preparation of your paper. My treatment for the cases is based upon the plan as carried out by yourself and others. I use suspension, gymnastics, forcible correction, and retention by plaster-of-Paris bandages.

Shall look forward with a great deal of interest for the appearance of your paper, which I know will be of great value to us. Yours truly, S. L. McCURDY.

Dr. Redard, Paris: "In answer to the questions which you have been kind enough to ask me, I would say, I am a convinced partisan, first, of suspension and plaster jackets in the treatment of scoliosis; second, of plaster jackets in the treatment of Pott's disease at a certain stage.

"In the *treatment of scoliosis* I recommend *vertical suspension* in cases of slight rigidity of the spinal column, and daily exercises as a preparation for the application of plaster jackets.

"Vertical suspension is the basis of a great number of exercises carried out with the different apparatus which are described in my work on *Orthopædic Surgery*.

"In a great number of cases where there is pronounced rigidity of the spinal column, I use my apparatus for lateral suspension.

The removable corset gives excellent results in a great number of cases of scoliosis which, in my opinion, however, are not obtained *solely* by its use, but in conjunction with proper exercises to strengthen the vertical muscles and restore the flexibility and proper position of the spinal column.

"It is of particular value where the spine is movable and not rigid, and where suspension corrects the deformity to a great extent; in these cases the faulty attitude is partially overcome, the lateral curve is very much modified, and the height of the patient is increased. In the interval between the exercises the patient is well supported, the pressure on the various points of the thorax forces him to take a correct position, and he does not lose the benefit gained by the various exercises used to correct the deformity.

"To sum up, the plaster corset is of particular value as a means of support after the rigid spinal column has been rendered flexible by the methodical use of exercises properly carried out.

"Experience has taught me that it exercises very little influence on the deformity of the ribs, or the twisting of the spinal column.

"I would further say I do not use plaster corsets in the early stages of scoliosis. I recommend it in cases where there is a lateral flexion and where the vertical curve has been partially overcome by the use of vertical suspension. I have obtained excellent results in some cases of scoliosis in its second stage, by combining the treatment of plaster jackets and exercises with mechanical force in straightening the spinal column. The plaster jacket has been particularly valuable in my hospital practice, in very marked cases of scoliosis accompanied by pain and disturbances both of circulation and respiration. In these cases it has been of great benefit by supporting the body, preventing injurious compression of the organs of the thorax and abdomen, and greatly diminishing the pain.

"In the treatment of Pott's disease, when the disease is in the cervical region or accompanied by paraplegia, I employ *suspension*, placing the patient in an oblique or vertical position on a padded board.

"In the first stage of Pott's disease I prefer absolute rest in the horizontal position. I have obtained excellent results from the application of the plaster jacket at the period of reparation and consolidation of the spinal column, when it has been possible to prevent deformity and often pain has entirely disappeared, the result of entire rest in the horizontal position.

"According to my experience in some exceptional cases, the plaster jacket prevents, to some extent, the deformity in Pott's disease.

"I do not agree with some authors that this jacket can give extension to the two segments of the spinal column, and reduce pronounced curvature. The principal function of the apparatus is to obtain absolute rest and immobility for the diseased parts, and thus arrest the progress of the disease.

"In cases of Pott's disease in the cervical region the plaster jacket is of little use."

From this number of letters which, I take it, expresses pretty fairly the general opinion of the medical profession, I find six who condemn the plan altogether, or, at any rate, say that they do not use it; seven who say that in certain cases it is of use, and in others less serviceable in their hands than different means, and thirty-five who employ this mode of treatment altogether. Among the objections to their use, which have been set forth in the letters I have received, are those of Noble Smith, who says that "plaster-of-Paris jackets ought to be utterly condemned—first, because of their great weight; second, their interference with free respiration and cleanliness; and, third, the fact that they act simply as heavy, unscientific corsets, pressing upon the chest, and add very little to support the spine." I may simply answer these objections by saying that a properly made plaster jacket is but slightly heavier than a steel support, and in many instances is even lighter; that, when properly applied, embarrassment of respiration is caused by the pain which free respiratory movements give the spine in Pott's disease, and not on account of constriction of the plaster jacket; and that, as far as cleanliness goes, the patients who are clean before the application of the jacket, and are properly attended to by careful parents or nurses, remain clean, and that the accumulated evidence of many prominent physicians is a better refutation than anything I personally can say of the charge that they are "heavy, unscientific corsets, pressing upon the chest, and adding very little to support the spine."

Of the various substitutes that have been used instead of plaster of Paris, silicate of sodium can be as accurately fitted; but it is so much longer in setting that it is extremely difficult to make a good-fitting jacket on the patient, unless a plaster shell is placed outside of it to retain it in position until the silicate of sodium has become hard, or else the silicate jacket is made over a model, which adds greatly to the trouble of making the jacket. It also has the disadvantage of not allowing the insensible perspiration to pass through it, as does the plaster of Paris. This is apparent from the illustration of these two models, which represent two plaster jackets, covered in, top and bottom, with a small hole in one end to allow of the insertion of the stem of a tobacco pipe. One has been varnished and the other has not. Through the unvarnished one you see the smoke passes freely when I blow it inside the jacket; the other is impervious. In regard to felt, paper, wood, aluminum, leather, and celluloid, I would say that the felt, to my mind, is decidedly inferior to the plaster of Paris, being very little lighter, and in hot weather much more offensive. The objection to leather is that it is more liable to warp, and also the fact that it becomes offensive in hot weather. The celluloid, wood, paper, and aluminum jackets are lighter than the plaster of Paris, but have this disadvantage, that they require the services of a skilled artisan to construct them, and that they are beyond the reach of people of small means, who live at a distance from large towns, and a practical experience with them, as worn by different patients and manufactured by different surgeons, has shown me that they are much more difficult to adjust, so as to give comfort to the patient equal to that afforded by the plaster jacket. The principle, however, is that for which I strive—namely, the adapting of some plastic material to the body in cases of Pott's disease, in a position of comfort, and in lateral curvature in the position of best possible form, for the purpose of retaining the body continually in these improved positions—and the material of which the jacket is constructed is not essential, so long as the principle is carried out, though I think, in the vast majority of cases, that plaster of Paris will be found greatly superior to the other materials that I have mentioned on account of its cheapness and ease of application.

APPENDIX.

BERLIN, *December 23, 1894.*

DEAR DR. SAYRE: Owing to an unaccountable error I was under the impression that you would not deliver your address before January 15th, and therefore I had hoped to employ some leisure time at Christmas in fulfilling your request. To my great dismay, I see that the date is January 3d, not 15th, and that it is scarcely possible now for my answer to reach you in time.

I should feel inconsolable for this mistake were it not for the conviction that I can give you no information of importance, so that for you it is a matter of comparative indifference whether you receive my answer before or after your address.

From your great good nature I will trust that you will pardon me and not judge me too harshly.

With this letter I venture to send you a short article published in 1880, not because I think that it possesses any value, because your adjustable jackets are much simpler and more practical, but I wish to show you that I have always felt a keen interest in your method of treatment, which I consider a great advance on previous methods.

That I have, however, used portable plaster jackets only in a few cases during the last ten to twelve years is owing principally to reasons which in themselves have but slight connection with your method.

These reasons I will endeavor to give you briefly.

There is no necessity for me to enlarge at present upon the advantages of your beautiful plaster jackets, which are as familiar to yourself as to me. They are readily applied, are light, porous, cheap, obtainable anywhere, and—a fact upon which I lay as much stress as you do—they enable the physician to treat the case personally from beginning to end.

My reasons for adopting other styles of jackets in spite of all this are as follows:

In spite of all my efforts I could not succeed in giving the plaster jackets that durability which many of my patients required. A large proportion of my patients I see but once a year, some of them but once in two or three years, or not even so often as this, as they do not live in Berlin, and not a few—especially the older ones—require that their jackets should last several years.

The plaster jackets, like all which are of unyielding material, do not allow of sufficient discrimination; in slight or severe scoliosis the same jacket is always employed. As I treat even the mild cases with jackets, as well as gymnastics and massage, and consider the use of the jacket as the most important part of the treatment, it becomes necessary for me to have jackets of varied construction to suit special cases. In slight scoliosis I use simpler forms, which are, of course, less constraining. In severe scoliosis and spondylitis I use more complicated forms.

Elderly people, especially women, feel very uncomfortable in the stiff jackets; they complain of pressure, impeded breathing, etc., inconveniences which can be avoided by the use of steel-drill* jackets without losing the advantages of a sufficient support to the body.

Very young women often assert that the plaster jackets, and those of felt and wood, disfigure them more than the scoliosis itself, greatly increasing the size of the waist; further, they find them especially unpleasant in dancing. These disadvantages are not so manifest in the steel-drill jackets.

From my own observation I am of the opinion that the muscular tissue wastes away more quickly under the rigid material than under the steel-drill jackets.

Therefore I now use the plaster jackets only among the poorer classes, or in cases of spondylitis where a good support is required, until a suitable felt jacket can be provided.

In cases of severe scoliosis of little children, as also in spondylitis—in acute stages of the latter as a temporary means—I use felt-steel jackets made on a plaster model and working in exactly the same way as your plaster jackets. So soon as the pelvis is sufficiently developed to give a proper support, I prefer to use in spondylitis the steel-drill jackets with hip attachments and firm arm supports.

Partial suspension I make use of in preparing the models for felt-steel corsets and also as a gymnastic exercise in the treatment of scoliosis. For the latter purpose it is widely used in Germany.

Begging once more that you will kindly pardon my neglect, and that you will remember me most cordially to Dr. Reginald Sayre, I remain with much esteem and best wishes for the new year, Yours most truly, Flor. Beely.

Odessa, *December 23, 1894.*

Dear Sir: In answer to your kind letter I communicate you what follows:

In the treatment of spondylitis and scoliosis I consider portative apparatus as a very important factor.

In the beginning of my six-years-long practice I used to employ with success in the polyclinical cases the immovable plaster-of-Paris corsets; in private practice, when the patient's means allowed it, I applied wooden stays. Lately, in the first above-mentioned case I continue to use the same corsets, while in the last I apply Hessing's stuff-stays.

I use the plaster-of-Paris stays in the following way:

Partial suspension after "Beely," with that difference, that at Beely's the patients touch earth only with the tiptoes, while I find it sufficient when they touch it swiftly with the whole sole. On the body of the patient, done over with vaseline or covered with thin jersey, I apply a slight layer of ordinary richly gypsumed bandages of starched stiff gauze (not above two millimetres). When, after one to two minutes, that layer is congealed, I do it over again on of stays, bandages (thick-starched stiff gauze, little gypsum). When the layer has attained the thickness of three to four millimetres and is hard, I take off the whole by making a slit in front and immediately take out from inside the first thin layer, which parts very easily, as it is separated from the plaster-of-Paris corset itself by a layer of vaseline.

The advantages of the method are:

1. The absence of folets on the inner part of the stays. 2. On the hardened surface the stays become firmer, thinner, neater.

After having been dried in the drying room, or in summer in the sun, such stays fit exactly the body, as they contract while dried.

The dry stays are covered inside and outside with jersey by means of starch gum, their edges finished with dogskin; the stay lace is sewed on, etc.

The technique of wooden stays is explained in the herewith joined article. The technique of Hessing's stays is described, as you know, in the *Lehrbuch der orthopäd. Chir.*, von Albert Hoffa.

In the present time I use the plaster-of-Paris stays only when Hessing's stays are inaccessible for the patient on account of their price. The fixation of Hessing's stays is the most perfect, as well in cases of spondylitis as in those of scoliosis. The wearing of stuff stays, bound with steel, is much more agreeable to the patient than that of any hard stays, even the most perfect.

Patients that have worn hard stays, even of the lightest kind—as those of felt, of wood, or of celluloid—when they get Hessing's stays, that weigh much more, assert them to be much lighter, because they lie softly on the body. I consider as the principal defect of all hard stays, not excepting the plaster-of-Paris corsets, that they do *not fit firmly in the waist.* That defect impedes, especially in the treatment of spondylitis of the higher pectoral vertebræ, when the jury-mast is added to the stays, for the fixation of any hard stays on the pelvis is precarious.

As the use of hard stays is inevitable, Hessing's stays being dear, I consider the plaster-of-Paris stays as the best on account of the following reasons:

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* That is, cloth supported by steel bands.

1. They are cheap. 2. They are easily adapted directly on the patient without pattern. 3. They do not alter their shape and are not deflected by heat. 4. It is easy by means of a hammer to make a soft place in them. Their solidity, when well executed, is quite sufficient for children, when stays have to be changed every four to five months. They are less convenient when there is no necessity for such frequent change.

Hoping, dear sir, to have answered in a satisfactory way to your kind inquiry, Yours truly,

J. Waltuch, M. D.

1532 Pine Street, Philadelphia, *February 14, 1895.*

Dr. Lewis A. Sayre:

Dear Doctor: I may briefly add that my feeling with regard to the use of plaster-of-Paris bandages, in accordance with your suggestions in the treatment of spondylitis and scoliosis, is, that so far as spondylitis is concerned it affords the readiest and best mode of treatment that has ever been suggested for physicians residing at a distance from centers of population, who are unable to avail themselves of the aid of the instrument-maker.

With regard to scoliosis, I have not felt so well assured as to the expediency of using it. In the treatment of this latter affection it is necessary to continue our mechanical support for such a very long period, in order to obtain lasting results, that I have somewhat feared the effect of the necessary compression of the chest on the general development and nutrition of the patient. My theory in the treatment of the latter affection has been to make use of elastic force applied simply in the directions opposed to the deformity.

Looking at the entire question from a more general standpoint, I wish to say that nothing in the modern history of orthopædics has done so much to bring about a revival of interest in this class of cases on the part of the general practitioner, or to conduce to a rational and effective management of spinal affections, not in this country alone, but throughout the world, as your able advocacy of the methods introduced by you.

Yours fraternally, Benjamin Lee.

THE SIGNIFICANCE OF THE PRESENCE OF LACTIC ACID IN THE STOMACH.

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The presence of lactic acid in the stomach is of great interest to the physiologist as well as to the physician. Since the publication of the classic experiments of Ewald and Boas,* it has been generally believed that lactic acid is a normal constituent of the gastric contents. These writers showed that after the introduction of an ordinary test breakfast of water and a roll, lactic acid was the first to make its appearance; there was then a period during which both lactic and hydrochloric acids were present, the former being much decreased in quantity; at the end of an hour, hydrochloric acid alone could be detected.

It is held by many recent writers that lactic acid is a normal constituent of the gastric contents, and that in certain pathological conditions it is likewise frequently found during the entire period of gastric digestion. The conditions referred to are those in which hydrochloric acid is absent, as in chronic gastritis, especially when there is marked motor disturbance of the stomach. The production of lactic acid was ascribed to the fermentation of the carbohydrates of the test meal,* and its disappearance was attributed to the presence of sufficient free hydrochloric acid. These results were obtained by means of Uffelmann's test; this, as is well known, is performed as follows:

One or two drops of a neutral ferric-chloride solution are added to ten cubic centimetres of a one-per-cent. solution of carbolic acid, and the mixture is diluted with water until it assumes an amethyst-blue color. To a few cubic centimetres of this solution a small quantity of gastric juice is added; if lactic acid is present the liquid assumes a yellow color. Those who have frequently used this reagent for detecting lactic acid know how variable the yellow is: sometimes there is the merest shade of yellow; at others, an intensely yellow color is produced. We frequently find such expressions as "slight," "doubtful," "intense" reaction in literature. A number of years ago, Boas † called attention to this fact, and laid stress upon the point that such designations were absurd, and that only an intense canary-colored yellow "*Zeisigfärbung*" could be relied on. In a later communication, On the Significance of Lactic Acid in Cancer of the Stomach, he ‡ draws attention to the fact that the canary-yellow color is indicative of cancer of the stomach.

It is now known that Uffelmann's test is not reliable, for by its means similar reactions may be obtained with other organic acids, glucose, and alcohol (which are frequently present in the gastric contents), and furthermore for the reason that hydrochloric acid and the phosphates may prevent the reaction when lactic acid is in fact present.

Martins and Lüttke # were the first to show that lactic acid was not a normal constituent of the gastric contents.

They determined: A, total acidity (with phenolphthalein); a, total chlorine; b, chlorine in chlorides. $(a - b) =$ hydrochloric acid secreted; $A - (a - b) =$ lactic acid.

They examined the gastric contents of healthy individuals after an Ewald-Boas test breakfast. The stomach was expressed of its contents five minutes after the breakfast had been administered, and at five-minute intervals thereafter. By this indirect method they determined that the total acidity and amount of hydrochloric acid produced were exactly the same. This was, therefore, the proof that lactic acid was not produced. The presence, therefore, of lactic acid in any considerable amount signifies a pathological condition.

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* Ewald und Boas. Beiträge zur Physiologie und Pathologie der Verdauung. Virchow's *Archiv*, Bd. ci, 1885.

* Cahn und Mering. Die Säuren des gesunden und kranken Magens. *Deut. Archiv f. klin. Med.*, Bd. xxxix.

† Boas. Lectures to Physicians (unpublished).

‡ Boas. *Deut. med. Wochenschrift*, 1892, S. 372.

Martins und Lüttke. *Die Magensäure des Menschen*, Stuttgart, 1892, Seite 35 und 158.

In a review of Martins and Lüttke's monograph, Boas* points out that the absence of lactic acid in normal conditions was proved in an indirect manner only by these investigators, and that further and more convincing evidence was needed. Much credit is due Boas for the solution of this problem. Inasmuch as Uffelmann's reagent was not sufficiently delicate, a new method † for the determination of lactic acid had to be devised. This method is based on the principle that a solution of lactic acid, when carefully heated with strongly oxidizing substances, is decomposed into acetic aldehyde and formic acid. The aldehyde is detected by the formation of iodoform in an alkaline solution of iodine. The qualitative determination is made as follows:

Ten cubic centimetres of gastric filtrate are evaporated to a syrup in a porcelain dish over a water bath. If free acids are present (which may be determined with Congo paper), an excess of barium carbonate is added before evaporation. A few drops of phosphoric acid are now added to the syrup and the carbon dioxide removed by boiling for a moment. The mass is now allowed to cool, and treated two or three times with fifty cubic centimetres of ether ‡ to remove the carbohydrates, for these likewise form aldehyde when oxidized. After digesting for half an hour, the clear ether layer is poured off, the ether evaporated, and the residue washed into a flask with forty-five cubic centimetres of water; the flask is shaken up and, if necessary, the mixture is filtered. The filtrate is treated with five cubic centimetres of concentrated sulphuric acid (specific gravity, 1·84) and a small quantity of manganese dioxide. A perforated cork, into which a bent piece of tubing is placed, is fitted into the flask; the tubing is led into a small cylinder containing an alkaline iodine solution (equal parts of a one-tenth normal iodine solution and normal sodium hydrate). The flask is now carefully heated over a small Bunsen flame, and as soon as the boiling begins the iodine solution becomes cloudy and the odor of iodoform is detected.

The quantitative method for the determination of lactic acid is similar to the qualitative method. After the evaporation of the ether, the residue is washed into a flask with forty-five cubic centimetres of water, and five cubic centimetres of sulphuric acid and manganese dioxide are added. The contents of the flask are now carefully *distilled* until four fifths of the fluid have passed over. The distillate is collected in a flask containing twenty cubic centimetres of water (a piece of glass tubing being connected with the still and reaching into the water).

The solutions required for the estimation of the lactic acid are the following:

1. One-tenth normal iodine solution.
2. One-tenth normal sodium arsenite solution.
3. HCl of a specific gravity 1·018.
4. KOH (fifty-six grammes KOH to a liter of water).
5. A freshly prepared thin solution of starch paste.

The alkaline iodine solution is added to the distillate (usually ten cubic centimetres of one-tenth normal iodine solution dissolved in ten cubic centimetres of the KOH solution). The flask is now closed and the mixture allowed to stand for a few minutes. Twenty cubic centimetres of normal HCl are next added, and then sodium bicarbonate in excess and one-tenth normal sodium arsenite until the mixture is entirely decolorized. The excess of sodium arsenite is now titrated back with a one-tenth normal iodine solution (the starch solution having previously been added) until a blue color appears which does not disappear on stirring. The number of cubic centimetres of one-tenth normal iodine minus the number of cubic centimetres of a one-tenth normal sodium arsenite used, indicates the amount of iodine necessary to form iodoform and indirectly the amount of lactic acid.

The calculation of lactic acid depends on the principle discovered by Boas,* that one cubic centimetre of one-tenth-normal iodine solution corresponds exactly to ·003388 gramme lactic acid; so that it is only necessary to multiply the number of cubic centimetres of one-tenth normal iodine used by ·003388 to determine the amount of lactic acid.

Example: Amount of one-tenth normal iodine at first used, 10 cubic centimetres. Titration with one-tenth normal sodium arsenite, 7 cubic centimetres. One-tenth normal iodine needed to titrate back, 0·5 cubic centimetre. Therefore the whole amount of iodine used is 10·5 cubic centimetres. Minus the whole amount of sodium arsenite, 7 cubic centimetres. Leaving, therefore, to form iodoform, 2·5 cubic centimetres. The amount of lactic acid is consequently 2·5 × ·003388 = 0·00847 for 10 cubic centimetres, or 0·0847 per cent.

By this method Boas found that the roll of bread of the ordinary Ewald-Boas test breakfast contains considerable quantities of lactic acid; this was also found true of all forms of baked carbohydrate food, such as crackers, zwieback, so that all results in regard to the production of lactic acid in the stomach based upon such test meals are wholly fallacious. A test meal entirely devoid of lactic acid was sought. This was found in the form of a simple flour soup consisting of a tablespoonful of flour to the liter of water.† The ether extract of such a soup does not produce on oxidation the slightest traces of aldehyde, and therefore does not contain any lactic acid.

Employing such a test meal and using his new method, Boas ‡ determined the "presence of lactic acid in health and disease." He found that under normal conditions lactic acid is not produced during any stage of digestion. It was not found in five cases of chronic gastritis, five cases of atony, and six cases of dilatation (non-malignant forms). From these results he concluded that, notwithstanding an absence of free hydrochloric acid and the presence of marked motor insufficiency (conditions usually considered most favorable for the production of lactic acid), this acid need not be produced after the introduction of carbohydrate food; a third factor is necessary for its production.

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* Boas. *Zeitschrift f. klin. Med.*, Bd. xxi, H. 3 und 4.

† Boas. *Deut. med. Wochenschrift*, Sept. 28, 1893, No. 39. *Münch. med. Wochenschrift*, 1893, No. 43. *Allgemeine Diagnostik und Therapie*, 3te Auflage, 1894, pp. 178, 179.

‡ The ether must be absolutely free from alcohol.

* Boas. *Deutsche med. Woch.*, No. 39, September 28, 1893, p. 942.

† On account of the pleasanter taste Boas uses Knorr's "Hafermehl." Salt may be added to suit the taste. Knorr's "Hafermehl" may now be obtained of Messrs. Meyer and Laage, 195 Franklin Street, New York.

‡ Boas. *Zeitschrift für klin. Med.*, 1894, H. 3 und 4, S. 285.

In thirteen out of fourteen cases of cancer of the stomach lactic acid was found in rather large quantities (from 0·13 to 0·382 per cent.), though the stomach had been previously washed out and the test meal had remained in over-night. In four cases it was found very early in the course of the disease, long before the tumor could be palpated. The conclusion is therefore reached that lactic acid as found by this new method is an early diagnostic sign of cancer of the stomach. Boas, however, draws attention to the fact that the absence of lactic acid is not necessarily indicative of the absence of cancer.

In a recent communication from Boas's polyclinic, Oppler [*] brings forward the following new observations concerning the production of lactic acid in cancer of the stomach:

1. Lactic acid is found in the gastric contents in large quantities in those cases of cancer in which marked motor disturbance is associated with an absence of free hydrochloric acid. In these cases sarcinæ are always present.

2. Lactic acid may be found in those cases of cancer in which the motor functions are normal and free hydrochloric acid is absent. In these cases sarcinæ are always absent.

3. Lactic acid is never found when the motor function is disturbed and free hydrochloric acid is present. Sarcinæ are found in these cases.

Oppler has discovered peculiar slender bacilli grouped in chains in those cases of gastric cancer in which lactic acid is formed. Inasmuch as he was unable to cultivate these organisms on any of our known media, he can not state what relation they bear to the production of lactic acid in the stomach.

The work of certain authors tends to verify the correctness of Boas's views in regard to the production of lactic acid in cancer of the stomach. Thus Schüle,[†] Strauss,[‡] Hammerschlag,[#] and Mintz [‖] arrive at the same conclusion. But few observers have found large quantities of lactic acid as determined by a real Uffelmann's reaction (canary-yellow color) after an ordinary test breakfast of bread and water in conditions other than cancer; none have found it after the flour-soup meal, when examined according to the method of Boas, except in that disease.

Special attention has been recently directed to those rare cases in which lactic acid was found in non-cancerous conditions. There are a few cases reported by Strauss, one case of Thayer,[*] and one of Rosenheim.[†] These examinations were made without previous lavage and after an ordinary Ewald-Boas test breakfast, Uffelmann's reagent being employed.

It is probable that the lactic acid was introduced with the test breakfast. The cases of Thayer and Rosenheim are especially interesting.

In both there was a marked dilatation of the stomach, a palpable tumor, absence of free hydrochloric acid, and presence of lactic acid, as determined by Uffelmann's reagent. There was marked emaciation in both cases. Thayer's patient was twenty-two years old, Rosenheim's fifty-eight years. The autopsies revealed a stricture of the pylorus, with ulceration, in Thayer's case; an hypertrophy of the pylorus, with an atrophy of the gastric mucous membrane, in Rosenheim's case; in neither was there a cancer.

Inasmuch as the examinations were made before the introduction of the new form of test meal and before all the necessary precautions were known, they lose their importance.

In our own experiments the contents of the normal and the diseased stomach were examined with a view to determine the absence or presence of lactic acid.

Table I.—*Normal Cases.*

Number.	Name.	Time of expression of flour test meal in minutes.	Free HCl determined by phloroglucin-vanillin.	HCl determined by Heyner-Seeman's method.	Organic acid, by Heyner-Seeman.	Result of the oxidized ether extract.	Titration for 10 c.c., one tenth iodine found.
1	F. J.	5	Absent.	0	0	No aldehyde.	10·2
2	“	15	“	0·055	0	“ “	10·1
3	“	25	“	0·117	0	“ “	9·7
4	“	35	Present.	0·149	0	“ “	10·2
5	“	45	“	0·167	0	“ “	10·3
6	“	55	“	0·179	0	“ “	9·8
7	E. F.	10	Absent.	0	0	“ “	10·4
8	“	20	“	0·052	0	“ “	10·1
9	“	30	Present.	0·124	0	“ “	
10	“	40	“	0·139	0	“ “	
11	“	50	“	0·175	0	“ “	10·2
12	“	60	“	0·178	0	“ “	9·9
13	J. M.	15	Absent.	0·068	0	“ “	
14	“	30	Present.	0·154	0	“ “	9·7
15	“	45	“	0·171	0	“ “	10·1
16	“	60	“	0·175	0	“ “	10·2
17	J. B.	15	Absent.	0·048	0	“ “	9·8
18	“	30	Present.	0·134	0	“ “	10·1
19	“	60	“	0·171	0	“ “	10·2
20	B. K.	30	“	0·167	0	“ “	
21	“	60	“	0·182	0	“ “	
22	T. W.	10	Absent.	0	0	“ “	10·3
23	“	40	Present.	0·124	0	“ “	10·1
24	E. N.	15	Absent.	0·021	0	“ “	9·9
25	“	30	Present.	0·128	0	“ “	10·2
26	“	45	“	0·165	0	“ “	10·1
27	K. B.	15	Absent.	0·052	0	“ “	10·3
28	“	30	Present.	0·146	0	“ “	9·7
29	“	60	“	0·184	0	“ “	10·2

The first table represents the normal cases. Of these, there were three cases of perfectly normal digestion, and six cases of nervous dyspepsia, in which the motor and secretory functions were perfectly normal. The examinations numbered twenty-nine in all. In every case the stomach was thoroughly washed before a flour test meal of Boas, consisting of a litre of flour soup (one tablespoonful of flour to the litre of water), was given. The stomach was expressed of its contents at various intervals, as represented in the table (five to sixty minutes), so that every period of digestion was studied. In some cases a part of the contents was removed, and after an interval the remainder. Never were more than two expressions made on the same day.

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[*] Oppler. Zur Kenntniss des Mageninhalts beim Carcinoma ventriculi. *Deut. med. Wochenschrift*, January 31, 1895, S. 75.

[†] Schüle. Beiträge zur Diagnostik des Magencarcinoms. *Münch. med. Woch.*, 1894, No. 38.

[‡] Strauss. Ueber Magengährungen und ihre diagnostische Bedeutung. *Zeitschr. f. klin. Med.*, Bd. xxvi, H. 6.

[#] Hammerschlag. Ueber eine neue Methode der quantitativen Pepsinbestimmung. *Internat. klin. Rundschau*, 1894, No. 39.

[‖] Mintz. Ueber die chirurgische Behandlung der Magenkrankheiten. *Zeit. f. klin. Med.*, 1894, H. 1 und 2, S. 126.

[*] Thayer. *Bul. of the Johns Hopkins Hospital*, 1893, No. 31.

[†] Rosenheim. *Berl. klin. Woch.*, 1894, No. 39, S. 887.

The contents were examined for lactic acid according to Boas's method, for free HCl with phloroglucin-vanillin, for HCl and organic acids according to Heyner-Seeman. This last method served as a control in the estimation of organic acids.

From these experiments it is conclusively shown that, under normal conditions, lactic acid is never produced during any period of digestion after the introduction of carbohydrate food into the stomach.

The occurrence of lactic acid in various diseases of the stomach was next studied. These included four cases of superacidity, eight cases of atony, two cases of dilatation (non-malignant), eight cases of chronic gastritis, four cases of secondary gastric catarrh, and four cases of cancer of the stomach.

Table II. Cases of Superacidity.—Of the four cases of superacidity, one was a marked case of supersecretion, one a doubtful case of ulcer, and the two remaining cases nervous dyspepsias. In all there were high percentages of free hydrochloric acid of over 0·3 per cent. The stomach was expressed of its contents an hour after the flour-soup test meal. In none was lactic acid found.

TABLE II.—*Cases of Superacidity.*

Number.	Name.	Disease.	Time of expression of flour test meal.	Acidity as determined by phenolphthalein.	Percentage of free hydrochloric acid, according to Mintz.	Result of the oxidized ether extract.	Titration for 10 c.c., one tenth iodine found.
1	B. C.	Supersecretion.	1 hour.	89	0·3054	No aldehyde.	9·8
2	D. W.	Superacidity (ulcer ?).	1 "	98	0·3127	" "	9·9
3	G. A.	Superacidity, nervous dyspepsia.	1 "	94	0·3168	" "	9·8
4	P. J.	Superacidity, nervous dyspepsia.	1 "	92	0·3089	" "	10·1

Cases of Atony.—In Table III are represented the cases of atony. These patients were examined at half an hour to two hours after a flour test meal had been ingested. There was the normal percentage of free hydrochloric acid in all; in but one case was there the slightest trace of lactic acid. The amount was exceedingly small, being represented by the merest discoloration of the iodine solution. Such small quantities as these (as is mentioned by Boas) may be accounted for by the swallowing of the lactic acid present in the mouth. The amount was so insignificant that it in no way changes the general results. These examinations confirm Boas's statement that, when there is even marked motor disturbance of the stomach, lactic acid is not produced.

TABLE III.—*Cases of Atony.*

No.	Name.	Time of expression of flour test meal.	Total acidity, phenolphthalein.	Free hydrochloric acid, according to Mintz.	Result of oxidation of ether extract.	Titration for 10 c. c., one tenth iodine solution found.
1	F. B.	1 hour.	42	0·1431	No aldehyde.	9·8
2	"	2 hours.	44	0·1456	" "	10·2
3	M. W.	1 hour.	48	0·1572	" "	10·1
4	L. P.	½ "	32	0·1092	" "	9·7
5	"	1 "	50	0·1744	" "	9·9
6	L. N.	1 "	46	0·1598	" "	10·1
7	W. C.	1 "	45	0·1478	Slight traces.	9·8
8	"	2 hours.	48	0·1492	No aldehyde.	9·8
9	F. G.	1 hour.	46	0·1490	" "	10·1
10	G. W.	1 "	44	0·1438	" "	10·2
11	H. T.	1 "	52	0·1731	" "	9·9
12	"	1½ "	54	0·1782	" "	9·8

In Table IV are represented the cases of dilatation. Case I suffered with a marked motor insufficiency, the dilatation being due to the narrowing of the pylorus, probably from cicatrized ulcer. Case II is especially interesting.

TABLE IV.—*Cases of Simple Dilatation (non-malignant).*

No.	Name.	Time of expression of flour test meal.	Total acidity, phenolphthalein.	Free HCl, Mintz.	Result of oxidation of ether extract.	Titration for 10 c. c., one tenth iodine solution found.
1	H. K.	4 hours.	68	0·2265	No aldehyde.	9·9
2	"	5 "	65	0·2154	" "	10·1
3	F. H.	3 "	8	Absent.	" "	10·2
4	"	4 "	10	"	" "	9·8
5	"	5 "	12	"	" "	9·9
6	"	7 "	8	"	" "	9·8

The patient, F. H., fifty years of age, had complained of dyspeptic symptoms for several months before consulting me. Previously he had always been in good health and able to eat and digest all forms of food. The gastric disturbance came on rather suddenly with a violent attack of vomiting and purging. After a few days the patient felt better, but soon after there was constant nausea, occasional vomiting of large quantities of undigested food, pain in the epigastrium, frequently constipation followed by severe attacks of diarrhœa. There was an entire loss of appetite and headaches were frequent.

On examination, the patient was found rather badly nourished, mucous membranes pale, pulse rather weak, tongue coated; heart, lungs, and urine normal. The abdomen was rather tender to pressure; no resistance could be felt anywhere. By quick shocks with the hand upon the abdomen a splashing sound could be elicited as low as three fingers' breadth below the umbilicus, which was found by subsequent inflation of the stomach with air to be the position of the greater curvature. Even with very small quantities of fluid in the stomach (one hundred cubic centimetres), a marked succussion sound was produced. Frequent expressions of the gastric contents after an Ewald-Boas test breakfast always brought forth large quantities of badly digested contents of an acidity ranging from eight to ten, without any free hydrochloric acid. The expression of the contents of the stomach before the ingestion of any food in the morning after a Boas test supper had been given the evening before brought forth food remains. The examination of the gastric contents with Uffelmann's reagent always gave a doubtful lactic-acid reaction. Repeated examinations were made for lactic acid, according to Boas's method, with the flour-soup test meal. Expressions were made in from three to seven hours. Lactic acid was never found. For several months the patient grew worse, suffered much from constipation and became markedly emaciated, notwithstanding the usual dietetic treatment, the use of lavage, intragastric faradization and galvanization, use of hydrochloric acid, etc. On account of the continued absence of lactic acid from the gastric contents and the absence of a palpable tumor, the diagnosis of chronic gastritis with dilatation was made. The subsequent history of the case showed this diagnosis to be correct; for after a few months the patient began to feel better, gained flesh, and now, over a year after his first visit, his general health is good and he suffers but little, though there is still a marked motor insufficiency with entire absence of free hydrochloric acid.

This case shows that lactic acid need not be produced even if there is marked motor insufficiency with entire absence of free hydrochloric acid.

Table V.—*Cases of Chronic Gastritis.*

No.	Name.	Time of expression of flour test meal.	Total acidity, phenolphthalein.	Free HCl, phloroglucin-vanillin.	Result of oxidation of ether extract.	Titration for 10 c. c., one tenth c. c. iodine found.
1	J. B.	1 hour.	8	Absent.	No aldehyde.	10·1
2	"	½ "	8	"	" "	9·8
3	B. N.	1 "	10	"	" "	9·7
4	"	1½ "	7	"	" "	9·8
5	A. B.	1 "	8	"	" "	9·9
6	"	½ "	9	"	" "	9·6
7	B. W.	1 "	10	"	" "	10·2
8	"	1½ "	10	"	" "	9·9
9	S. S.	1 "	12	"	" "	9·6
10	G. F.	1 "	12	"	" "	9·9
11	D. B.	1 "	9	"	" "	9·8
12	B. H.	1 "	8	"	" "	9·8

In Table V are represented the cases of chronic gastritis. The examinations were made half an hour to an hour after the ingestion of the flour-soup test meal. In but one case (Case V) mere traces of lactic acid were found (these probably having been swallowed).

It is thus shown that a mere absence of free hydrochloric acid is not in itself sufficient to cause the production of lactic acid in the stomach.

Table VI.—*Secondary Gastric Catarrh.*

Number.	Name.	Primary disease.	Time of expression of flour test meal.	Acidity, phenolphthalein.	Free HCl, phloroglucin-vanillin.	Result of oxidized ether extract.	Titration for 10 c. c., one tenth iodine found.
1	P. M.	Pulmonary tuberculosis	1 hour.	12	Absent.	No aldehyde.	9·9
2	T. W.	Do.	1 "	20	"	" "	10·1
3	J. P.	Heart disease.	1 "	16	"	" "	10·2
4	K. F.	Pulmonary tuberculosis	1 "	8	"	" "	9·8
5	"	Do.	1½ "	9	"	" "	9·9

Table VI contains the cases of secondary gastric catarrh. Of these, three were due to pulmonary tuberculosis and one to heart disease. In all there was an absence of free hydrochloric acid and an absence of lactic acid.

Our investigations have therefore shown that lactic acid is never produced after the ingestion of carbohydrate food in any chronic non-malignant disease of the stomach.

Four cases of cancer were examined according to the method of Boas (Table VII). The flour test-meal was allowed to remain in the stomach overnight, and was removed in nine or ten hours after its introduction, a marked motor insufficiency (dilatation) being present in all the cases. In all there was an absence of free hydrochloric acid; in all large quantities of lactic acid were found with both Uffelmann's and Boas's methods.

Table VII.—*Cases of Cancer.*

Number.	Name.	Time of expression of flour test meal.	Free hydrochloric acid, phloroglucin-vanillin.	Lactic acid. with Uffelmann's reagent.	Per cent. of lactic acid, according to Boas.	Remarks.
1	F. G.	9 hours.	Absent.	Present.	0·15	Cancer of the pylorus.
2	"	10 "	"	"	0·11	
3	B. T.	10 "	"	"	0·31	Pyloric cancer.
4	"	9 "	"	"	0·30	
5	A. C.	9 "	"	"	0·27	Cardiac, pyloric, and liver cancer.
6	D. B.	9 "	"	"	0·29	Pyloric cancer.

Three were cases of pyloric cancer with dilatation; one of cardiac and pyloric cancer, with dilatation and nodules in the liver. Three of these cases have since died.

These cases show that in cancer of the stomach large quantities of lactic acid may be produced in the stomach.

It must be remembered, however, that there are cases of cancer in which lactic acid does not appear. The presence of lactic acid indicates cancer; its absence does not prove the opposite. Other cases of cancer were examined with reference to the formation of lactic acid, but only with Uffelmann's reagent. I therefore omit them from this list.

From our numerous observations we are enabled to confirm Boas's statements, and conclude that lactic acid is not formed during digestion in the normal or in the diseased stomach, excepting cancer, but that in this disease it is usually produced in great quantities. Furthermore, that Uffelmann's test is to be relied upon only in those cases in which the reaction is very marked and decided, and never unless the stomach has been previously carefully washed and a simple flour test meal ingested. We can heartily recommend Boas's method for accuracy and reliability.

[Note.—Since the foregoing was written an article by Dr. D. D. Stewart, on A New Diagnostic Sign for the Early Recognition of Carcinoma of the Stomach, has appeared (*Medical News*, February 16, 1895). Dr. Stewart reviews Boas's work, and states that while as yet he is unprepared to offer the data obtained from an investigation of the subject to the present because of paucity of material, etc., he "may rightly state that thus far his observations are all in support of Boas, and he has come to feel that much may be expected from this new diagnostic sign."]

ON THE
TECHNIQUE OF USING ANTITOXINE.

By GEORGE CHAFFEE, M. D.,

BROOKLYN.

Having just dismissed a patient on whom antitoxine was used, and as the use of the remedy is about to become general, a few lines on technique may not be considered out of place. First of all is the selection of a reliable preparation. Next, a suitable instrument, which is a mammoth hypodermic syringe. A very good one is made by George

Ermold, No. 312 East Twenty-second Street, New York. An ordinary hypodermic syringe is of no use whatever. The Ermold Antitoxine Syringe holds ten cubic centimetres, one ordinary dose of "No. 2 curative." Repeat this dose in from ten to twenty-four hours, according to the severity of the case. From one to three cubic centimetres of No. 1 will protect. The administration of antitoxine is simply hypodermic medication on a very large scale. The serum being aseptic, the same precautions and general laws of antisepsis must be observed as in making any operation. If the operation is not conducted with proper regard for asepsis, trouble will follow, and the reputation of the remedy will be made to suffer by careless operators. The syringe should be taken apart, and, with the needle, sterilized by boiling for five minutes in a solution of bicarbonate of sodium. If the cap on the needle end of the syringe can be unscrewed, the cylinder may be filled by pouring the serum directly from the bottle. If this cap can not be unscrewed, I sterilize a china egg cup, into which I pour the serum for filling the syringe. The inside of the egg cup runs to a point and none of the serum is wasted. After the instrument and cup are sterilized I fold them in a fresh napkin or towel and place them in my instrument bag, ready to be taken to the patient's home. The locality selected as the site of medication is either between the shoulder blades, on the breast, on the thigh, or on the gluteal region. On account of the large amount to be injected a place is selected over which the skin is quite free. The skin over the point selected should be cleansed with brush, soap, and water, and after this a solution of bichloride or permanganate of potassium. The size of the needle used and the amount of serum injected—ten cubic centimetres—make a local anæsthetic quite necessary, especially with timid children. For many reasons I should object to the use of cocaine for this purpose. As an anæsthetic I use a small piece of ice, with only one layer of napkin between it and the skin, held on the site of medication for about two minutes only. Upon its removal pour over the site a little more of the bichloride or potash solution, cold; pick up a fold of the skin at once, and pass the needle well in for about an inch, and inject very slowly. When the needle is removed, apply the tip of the finger for a minute; next apply cotton and collodium dressing to seal the puncture. The collodium dressing should be allowed to remain for two or three days, when it may be removed and a dressing of vaseline and cotton applied. Slight discoloration of the skin over a spot about an inch across will be found. Following is a brief clinical history of a case covering six days where antitoxine was used:

C. A., aged nine years, girl.

First Day.—10 a. m.: Pulse, 100; respiration, normal; temperature, 102°; small patch of membrane on each tonsil; severe headache.

Second Day.—Before using, 4 p. m.: Pulse, 108; respiration, normal; temperature, 105°; severe headache; great thirst; restless; back and limbs are stiff; membrane is spreading over tonsils; culture was made; ten cubic centimetres of No. 2 antitoxine. After using, 9 p. m.: Pulse, 90; respiration, 36; temperature, 105°. Thirst continues, but patient not so restless.

Third Day.—Before 11 a. m.: Pulse, 120; respiration, 26; temperature, 102·2°; breathing was heavy; has had a "bad night"; no headache; limbs are not stiff; membrane spreading, nearly covers both tonsils, but is thinner and lighter in color. Report from bacteriologist on culture shows Klebs-Loeffler bacilli. Five cubic centimetres No. 2. After 4 p. m.: Pulse, 112; respiration, 22; temperature, 101·2°. Patient slept for an hour after injection; not so much thirst; membrane is clearing from tonsils and forming on posterior pharynx. "Feeling better." 9 p. m.: Pulse, 110; respiration, 22; temperature, 101·5°; quiet, bright, and easy.

Fourth Day.—Before 11 a. m.: Pulse, 106; respiration, 20; temperature, 100·8°; membrane is clearing, only specks remain on tonsils and some in pharynx; very good night; breathing is clear and easier. Five cubic centimetres No. 2. After 4 p. m.: No change.

Fifth Day.—Noon: Pulse, 100; respiration, normal; temperature, 99·8°. Patient is in good condition. Membrane is all off except a small speck on each tonsil. Collodium dressing removed from first operation. Vaseline and cotton applied.

Sixth Day.—Noon: Pulse, 94; respiration, normal; temperature, 99·8°. Membrane entirely gone. Collodium removed from second and third operations and dressed the same as the first

Note.—On the eleventh and again on the twentieth day after the membrane appeared, cultures were made for the purpose of raising the quarantine earlier if possible. Report of examination still shows presence of diphtheria bacilli.

No. 226 West Forty-seventh Street.

SOLID RETROPERITONEAL GROWTHS IN CHILDREN.*

By CHARLES P. McNABB, M. D.,
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From the title of my paper it will be seen that all cysts and purulent collections of the retroperitonæum are excluded, and as tubercular deposits in the lymph glands of that region are not sufficient to cause tumor, I shall also pass that by without further notice.

Tumors springing from behind the peritonæum will usually prove to be renal and of connective-tissue or epithelial origin. To be sure, an occasional fibroma, lipoma, angeioma, and lymphadenoma have been met with; so also do the curious congenital rhabdomyomata, composed of striped muscular fiber and sarcomatous tissue, appear at long intervals, while Lobstein's cancer, or retroperitoneal sarcoma, will be seen in any long series of cases.

A very large percentage of abdominal tumors in children under five years of age will be cancer or sarcoma of the kidney, with the chances much in favor of the latter. Of cancerous growths, the most frequent is the *encephaloid* variety, which reach the largest size, develop rapidly, and are often encapsulated. Sarcomata are sometimes encapsulated, but oftener not so, and are also of luxuriant growth. Either may be primary or secondary, but when primary they originate either in the fibrous stroma of the cortex or in the submucous cellular tissue. Sometimes they start from a lymphatic gland or renal tissue at the hilum, and after penetrating the capsule take on and retain for a considerable time the form of the kidney by expanding its capsule.

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* Read before the Knox, Tenn., County Medical Society at its stated meeting, January 24, 1895.

Sarcomata are of the large and small round-celled varieties and are extremely vascular. Extravasation of blood into them is sometimes so great as to give them the appearance of a large blood clot.

The causes of malignant growths of the kidneys are renal calculi, pyelitis, retention of urine or pus in the pelvis or ureter, and mechanical injury; but in children the cause is often so obscure that the most diligent inquiry fails to find it.

The symptoms of sarcoma and encephaloid of the kidney are identical—tumor, pain, irritability of the bladder, progressive emaciation, steady increase in the size of the tumor, and bloody urine in a large percentage of cases, which, when it occurs, is more constant than it is with stone in the bladder and contains clots representing casts of the pelvis or ureter, which Osler says he has never seen in any other condition than malignant disease of the kidneys.

Late in the disease symptoms due to pressure on other organs appear—viz., œdema of the lower extremities, dyspnœa, rapid pulse, vomiting, and constipation. Uræmia is said to be rarely if ever present, which is due, no doubt, to the fact that these growths are so seldom bilateral.

The symptom of greatest importance is the tumor, appearing first in the ileocostal interval, then extending upward, downward, and toward the median line, bulging laterally and filling up the loin.

The colon, being anchored to the kidney, is always found in front of the tumor until displaced by the large size of the growth.

The pain differs from that of stone in not being increased by movement, is less boring or grinding, and is more darting or stabbing in character. The harder the growth the severer the pain; hence it follows that as encephaloid and sarcomata are the varieties met with in children, and as they are so soft as to be often mistaken for cystic growths, we are spared that distressing symptom in the majority of cases.

Hæmorrhage may be profuse or absent altogether. The urine, if free from blood, is normal both in quantity and quality, cancer-cell tube casts and pus being rarely if ever present.

The following case will, I hope, be of sufficient interest to justify me in reporting it to you:

Annie McK., born November 29, 1891, was a bright, healthy infant, except for a few slight pulmonary and intestinal catarrhal attacks, which were of no consequence, until May, 1893, when she had an attack of continued fever of indefinite type, lasting about two weeks. From this fever her convalescence was slow and rather unsatisfactory, and she did not regain her former plump and ruddy appearance, although she was very bright and quite active in her movements, until September following, when she had an attack that resembled vesical calculi in its behavior. So strongly did the symptoms counterfeit stone in the bladder that three thorough soundings were made under chloroform with negative results. The urine was scant, strongly acid, of high specific gravity, and loaded with urates, which led me to the conclusion that there was probably calculi lodged in the pelvis of the kidney or in the ureter, but this conclusion was blended with the hope that instead of a calculus, the concentrated urine had produced and was aggravating a vesical catarrh. The salts of lithium were administered freely, plenty of water allowed, a bland diet suggested, and the bowels were kept open with salines, under which treatment the little patient's condition improved so much that she was dismissed in November, and, though not satisfied with her condition, I lost sight of the case for a few weeks, during which time the mother knew she was ailing; but the symptoms were not pronounced, and, as I was overwhelmed with illness in my own family, she nursed her little one in silence and hoped for the better.

February 2, 1894, while bathing the child, the mother discovered a "lump in her left side" and called me in a few hours later. I found that the child had emaciated considerably since I had last seen her, but otherwise her general condition was fair. There was a tumor about as large as a goose's egg situated in the region of the left kidney and extending downward to the crest of the ilium and upward to the tenth rib. There was no bulging in the flank, but the growth appeared to touch the lateral lumbo-abdominal wall, and extended inward to within half an inch of the median line. It was ovoid in shape, was smooth, firm, and immovable. The abdominal wall could be lifted up over it, and the percussion note over it was tympanitic when the colon was empty and dull when the bowel was distended with fæces.

From these circumstances I concluded that it was a retroperitoneal growth, and from its situation that it sprang from the kidney. There had been no hæmaturia—in fact, the urine was normal at the time, both in quantity and quality, and there had been no complaint from pain. Nephrydrosis was excluded by the firmness and immobility of the tumor and a diagnosis of solid growth involving the left kidney was made, and this diagnosis was supported by the able consultants that saw the case at various times—viz., Dr. William Delpeuch, Dr. B. B. Oates, and Dr. John M. Boyd, of this city. The absence of pain inclined me to the belief that it was sarcoma. The tumor grew rapidly, and the child emaciated *pari passu* with its growth until June 22, 1894, when death closed the unequal contest. The post-mortem was made twenty-four hours after death; present and assisting, Dr. D. H. Williams, Dr. M. H. Lee, and Mr. R. E. McNabb.

An incision was carried from the manubrium to the pubes; the abdominal muscles were cut loose from their attachment to the ribs and turned back, displaying a large semi-fluctuating retroperitoneal tumor, filling the entire left side of the abdomen, and extending across the pelvic brim to the right linea arcuata. The colon was attached to its anterior surface, but pushed over almost to the median line. The small intestines lay altogether on the right side of the spinal column, and were empty, as were also the stomach and large intestine. The cardiac end of the stomach and the left lobe of the liver lay on top of, or anterior to, the upper extremity of the morbid growth. The pelvic organs were normal in all respects. The right kidney had undergone compensatory hypertrophy, but was perfectly sound, as was every other organ in the body; the left kidney had entirely succumbed to the ravages of the invader except at the pelvis, which contained about a drachm of creamy pus, beneath which there was a little tissue of nearly normal appearance. There was not half an ounce of adipose tissue to be seen in the whole body, and yet the child had retained a morbid appetite to the last, and her digestion was perfect all the time. There was not a single morbid adhesion anywhere to be seen, and not the slightest evidence of secondary involvement of any other organ.

The growth had insinuated itself around the iliac and renal vessels, but they had not been invaded to any considerable extent, if at all, as there had not been the slightest œdema of the lower extremities.

The ureter was included in the tumor to within an inch and a half from where it entered the bladder. Nothing abnormal was detected in the visible portion.

The tumor was not weighed when removed, but very nearly filled a gallon bucket, and was supposed by the gentlemen present to weigh six or seven pounds. On section it presented a dirty-gray appearance and was of brainy consistence. It did not contain a drop of fluid except a drachm or so of pus in the pelvis, and there was no evidence of former extravasation of blood into its substance.

Sections mounted by Dr. Williams showed it to be of epithelial type. Ziegler says that encephaloid cancer may remain long confined within its capsule when it is invested with a capsule, but it looks strange to see so large a growth of alveolar type in close contact with so many other organs susceptible of invasion and surrounded by a field so rich in lymphatics without secondary involvement anywhere.

The family history of this case is entirely negative. No trace of malignant disease has been recorded as far back as such history can be traced. I believe the pyelitis found at the autopsy was the ætiological factor of first importance, and that it was of catarrhal origin, but might have been due to uric-acid formations in the pelvis of the kidney.

The prognosis is very unfavorable. Death usually occurs in six months, and may come in as many weeks. Treatment is palliative and surgical. Palliative treatment consists in supporting the patient's vital powers by proper attention to hygienic laws, nutritious food, with artificial enzymes if necessary, sufficient outdoor exercise when the weather is favorable, relief of pain by anodynes, and the control of hæmorrhage, if troublesome, by the administration of astringents internally.

If the growth is encapsulated, its complete removal offers a possibility of cure, provided always that the operation is done before there are too many adhesions to contiguous viscera and blood-vessels. The attempt to remove such growths of considerable size and not encapsulated is impracticable and should not be undertaken.

References.

Keating's *Cyclopædia.*
Pepper's *System of Medicine.*
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Ziegler's *Pathology.*
Osler's *Practice.*
Whittaker's *Practice.*
Osler's *Lectures on Abdominal Tumors.*

The Death of Sir William Scovell Savory, Bart., F. R. S., is announced to have taken place on Monday, March 4th, as the result of a short illness. He was sixty-nine years old.

The Death of Mr. Charles H. Robinson, F. R. C. S. I., of Kingstown, Ireland, is stated in the *Lancet* to have taken place on Friday, March 1st, after two days' illness. The deceased was an occasional contributor to this journal.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, MARCH 23, 1895.

A TOWN IN THE DRUG BUSINESS.

Under the heading Is this Town Going into the Drug Business? the *Sun* recently published a letter, signed "Medicus," which with the omission of an irrelevant paragraph read as follows: "I learn from to-day's paper that the Legislature may authorize the New York health board to manufacture and sell 'antitoxine,' and that the Mayor has been urged by officials of the board to indorse the measure. . . . Since when is it necessary for a health board to manufacture therapeutic agents and to sell them in competition with legitimately established business concerns? And if it is right and proper that the antidiphtheritic serum be thus manufactured and sold on a business basis by our health board, why may not the scope of this department be enlarged, and the manufacture of other medicines be engaged in? Why not also bake bread, slaughter cattle, make butter, etc.? The people certainly are in need of such supplies too, and if medicine, why not food? Good and 'health board guaranteed and made' food will prevent sickness, as 'health board serum' and other drugs will cure. Your report says that 'Commissioner Edson and Secretary Clark of the department appeared in favor of the bill and no one in opposition.' I feel sure that if due notice of the hearing had been published, medical men and those interested in the manufacture and sale of the serum would have been there to say that the board's competition as a purveyor of the serum is not necessary, and that reliable firms are supplying all that is needed now, and at reasonable prices. Give the opponents a chance to be heard. But, above all, don't let a communistic measure, establishing a city department in business as competitor of citizens, pass and go into effect."

Dear "Medicus," the town is already in the drug business, and has been for years, so we fear your protest comes too late; nevertheless it is gratifying to find that at last one New York physician appreciates the situation, and your letter shows a distinct advance from the attitude which, ten or twelve years ago, the local profession presented when the board of health was empowered to engage in the production and sale of vaccine, to the inevitable detriment of certain physicians who by their own exertions had overcome a tremendous prejudice against animal vaccination, certainly without any moral support from the board, if not against the additional impediment of secret discouragement from individual officials serving under the board. Not only was there then no protest from the physicians of New York, but physicians even lobbied in favor of the bill, to their discredit be it said.

For individual officials of the board of health we have the greatest esteem and respect, and it has often been our pleasant duty to speak approvingly of their work as a body, but we are thoroughly convinced that when they seek the privilege of trading in antitoxine they are unconsciously working to undermine one of the dearest and most fundamental of the rights of American citizenship, that of following a business career without fear of governmental competition. What right has the government, national, State, or municipal, to engage in trade? Not the slightest. It will not do to say that the board of health is now seeking to do what private capital and individual skill are incompetent to accomplish; it is palpably untrue. We want no paternal government, no governmental monopoly. Come out with your name, "Medicus"; you need not be shy; let us know who it is that we should honor.

SOME OF THE RESPONSIBILITIES OF DICTIONARY-MAKERS.

In our issue for February 9th we criticised the wording of a bill that had been introduced into Congress having for its object the creation of a commission to inquire into the subject of the pollution of sources of water supply that might endanger the health of the people of more than one State. Our objection was to the use of the word develop in the sense of detecting. In the *Journal* for February 23d we printed a letter from Dr. Charles Smart, of the army, in which he avowed himself the framer of the bill and argued that his use of the word develop in it had been proper. This contention he fortified with definitions from Webster's *Dictionary*. Dr. Smart certainly has the dictionaries with him in this matter, but that only shows how fallible the lexicographers are. "The world is ever moving," says Archbishop Trench, "and language has no choice but to move with it." When Noah Webster, the master definer, made his dictionary the word develop meant precisely what he said it meant, but the world has moved since then, and in that sense the word may almost be said to have joined those which, to quote once more from Trench, have "wholly disengaged themselves from their etymologies." Development, as we understand it now, is a formative, almost a creative process. Nobody now seeks to "develop" his hat when he is about to take a walk. The dictionaries that are now in common use give the current meaning of the word, but, still in the bondage of etymology, they also give the old meaning in a way to lead the reader to think it still dominant or at least often employed. In this they are unquestionably wrong, and to them should the blunder be ascribed if this verbal anachronism creeps into our legislation.

By the way, another gross misuse of the word develop crops out every now and then in medical writing. It is not uncommon to find it recorded of a patient that, after having apparently started upon a favorable course, he suddenly "developed" pneumonia or some other untoward complication. Now, in no sense of the word did the patient "develop" the intercurrent disease; he did not even, to revert to the archaic, uncover, unfold, lay open, disclose, unravel, disentangle, or detect it; least of all did he cultivate and nurse it or bring it to its full growth; in short, he did not develop it. Let us try to strangle this abominable misuse of the word before it meets with undeserved recognition in the dictionaries.

Having thus blamed the lexicographers, we are doubly glad that we can conscientiously support them under what we believe to be unjustified reproach put upon them by our esteemed contemporary the *Medical News.* "The dictionaries," says the *News*, "derive the compounds of *ur-* and of *urin-* from the Greek οὖρον—an evident blunder, as they are patently derived from the Latin, and these hybrids, such as *uremia* [*sic*], etc., are simply hybrids, none the worse for the fact, except for the silly attempt to conceal their parentage by false etymologies, this now-you-see-it and now-you-don't derivation." As to this matter, we would simply express the opinion that compounds in *urin* are indeed from *urina*, but that just as surely are those in *ur-* (meaning, of course, those in which urine is designated) from οὖρον, and we can see no silliness or shadow of deviation from strict truthfulness in a statement to that effect.

The *News's* stricture on the lexicographers occurs in the course of an article in its issue for February 23d, in which it wonders at our preferring *uranalysis* to *urinalysis* and maintains its own preference to the contrary. The *News* is quite right when it says: "We suppose the chief objection to *urinalysis* to be against the elision of the syllable *an* of the second part of the compound *analysis* (Greek, ἀνάλυσις)." But the *News* seems to us to be in error and under the domination of the idea that the first part of the compound is from *urina*, and not from οὖρον, when it continues: "But in *uranalysis* there is an elision just as culpable, or more so, of one syllable of the other root, *urin-* (Latin, *urina*)." It appears to us, furthermore, that the *News* falls into two more errors in coining the word *ouronanalysis*, which it says is "perfectly correctly formed." Our learned contemporary must certainly be aware that the Greek ου is regularly transliterated into the Latin *u*, and it must also know that in making compounds the Greeks constantly dropped the terminal syllable of the first term, sometimes replacing it with a euphonious connective. In this instance no connective is needed, and we still maintain that the correct form is *uranalysis.* However, we should have refrained from commenting on our contemporary's use of *urinalysis* by preference had it not criticised a worthy author, Dr. Purdy, of Chicago, for using *uranalysis;* and we quite agree that urinary analysis is a good enough expression, for we have no sympathy with the craze for coining a word to express a phrase.

MINOR PARAGRAPHS.

AN EXCEPTIONALLY PRAISEWORTHY INSTANCE OF PROFESSIONAL SECRECY.

Whatever may be thought of Coroner Hoeber's conception of the criminality of abortion, no conscientious physician can fail to applaud him for having recently suppressed the name of a practitioner suspected of complicity in a criminal abortion. It is time enough to give out names when a case of that kind actually comes to judicial notice. Grave hardship and most grievous notoriety have, as our readers well know, been inflicted occasionally upon physicians wholly innocent of wrong in abortion cases.

THE CRAIG EPILEPTIC COLONY.

THE utterly unreasonable and disreputable attempt to legislate Dr. Frederick Peterson and his associates from the management of the colony ought not to be tolerated in the Legislature. Dr. Peterson is virtually the creator of this beneficent institution, and to deprive it of his guidance now would be a deplorable step.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 19, 1895:

DISEASES.	Week ending Mar. 12.		Week ending Mar. 19.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	9	1	5	3
Scarlet fever	125	14	130	14
Cerebro-spinal meningitis	2	2	2	1
Measles	164	12	134	14
Diphtheria	207	23	204	30
Small-pox	2	0	0	0
Tuberculosis	129	118	84	143

A Correction.—Dr. Ohlmacher, whose article entitled Some Suggestions in Bacteriological Technique appeared in our issue for March 2d, asks us to say that the word "benzene" should have been printed *benzine.*

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 10 to March 16, 1895:*

HEIZMAN, CHARLES L., Major and Surgeon, Fort Douglas, Utah, is granted leave of absence for one month, to take effect about March 10, 1895.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 16, 1895:*

YOUNG, L. L., Assistant Surgeon. Detached from the Naval Hospital, Norfolk, Va., and to wait orders.

FARENHOLT, AMMEN, Assistant Surgeon. Ordered to the U. S. Steamer Baltimore.

Society Meetings for the Coming Week:

MONDAY, *March 25th:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *March 26th:* New York Dermatological Society (private); Medical Society of the County of Lewis (quarterly), N. Y.; Buffalo Obstetrical Society.

WEDNESDAY, *March 27th:* New York Academy of Medicine (Section in Laryngology and Rhinology); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society (private), New York; Auburn, N. Y., Medical Association; Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society; Berkshire, Mass., District Medical Society (Pittsfield).

THURSDAY, *March 28th:* New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia.

Births, Marriages, and Deaths.

Married.

FISCHER—ROBERT.—In New York, on Wednesday, March 20th, Dr. Louis Fischer and Miss Clara Robert.

Died.

BRATENAHL.—In New York, on Monday, March 18th, Dr. Gustav Weber Bratenahl, in his twenty-eighth year.

FANNING.—In New York, on Thursday, March 14th, Lenora Carpenter, wife of Dr. A. M. Fanning.

FOREST.—In New York, on Friday, March 15th, Carrie Lucia, wife of Dr. William E. Forest.

MOWRY.—In Allegheny, Pa., on Thursday, March 14th, Dr. Robert B. Mowry, aged eighty-two years.

O'LEARY.—Near San José, Costa Rica, on Friday, February 8th, Dr. Jeremiah O'Leary, formerly of New York, aged fifty-two years.

SAMPSON.—In Tiffin, Ohio, on Monday, March 18th, Dr. W. G. Sampson, in his ninety-third year.

SKIFF.—In Frankfort, N. Y., on Wednesday, March 13th, Dr. Perrin O. Skiff, aged sixty-eight years.

SMITH.—In Meridian, Miss., on Tuesday, March 12th, Dr. A. H. Smith.

Obituaries.

JEREMIAH O'LEARY, M. D.

As is sententiously recorded under the heading of Births, Marriages, and Deaths in this issue of the *Journal*, a New York physician, Dr. Jeremiah O'Leary, ended his earthly career in a distant country, Costa Rica, on the 8th of February. He was born in Ireland, but was brought to New York with his parents when he was a mere boy. He was a graduate of the medical department of the University of the City of New York, of the class of 1864. Soon after obtaining his medical degree, being too modest to launch out upon the practice of his profession, he entered the Pacific Mail Steamship Company's service as a purser, and it was on board ship that the editor of this journal, then a surgeon in the company's employ, first met him. A close attachment sprang up at once between the two youngsters and proved enduring. In 1865 they both served together as acting assistant surgeons in Annapolis. For certain short periods Dr. O'Leary practiced medicine in New York, but most of his professional career was spent in Costa Rica, and he married an estimable lady of that country. Two of his daughters, Mercedes and Marita, "the O'Leary sisters," are well remembered by many a New Yorker for their proficiency at the piano when yet hardly in their 'teens.

Jerry O'Leary—for it was by that endearing name that his friends all called him—was one of the most lovable men that the Lord ever sent into the world. He was utterly without guile. His career, which included a residence in Japan for a time, was not without stirring and even dangerous incidents' and it was always beset with difficulties, but his unsuspicious and uncomplaining nature, full of benevolence toward all mankind, gave him a serenity that beamed amid all adversities and hardships. Peace to his noble and gentle spirit!

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of December 5, 1894.

The President, Dr. C. C. Barrows, in the Chair.

Empyema of the Antrum of Highmore.—Dr. C. G. Coakley presented two cases of this condition. They were interesting as illustrating both the chronic and acute forms. The chronic case was that of Mr. D'S., forty-five years of age, who had been sent to him by Dr. J. E. Winters. He had been taken sick on December 9, 1893, with a marked chill and a sharp rise of temperature. The elevation of temperature had lasted for two days, and then there had appeared an odorless, purulent discharge from the left nostril. Five or six days later there had been a marked odor to the discharge, and he had complained of very intense supra-orbital and occipital headache. Previously to his coming to Dr. Winters the nose had been washed out twice daily for four months by one physician and once daily by another physician for two months. Within a half hour or more after the washing the discharge had been as profuse as before —indeed, so profuse had it been that it had "saturated two or three Turkish towels every day." On examination, the left nasal cavity had been found very much contracted, the inferior turbinate swollen so as to touch the sæptum, and the entire cavity filled with very foul-smelling pus. Examination with a probe had shown the inferior turbinate to be sound, but a necrotic condition of the middle turbinate. The test by transillumination had shown the whole affected side dark in the infra-orbital region, and also an absolute darkness of the pupil on the affected side. A triangular-bladed knife had been introduced into the antrum, along the floor of the nares underneath the inferior turbinated bone; yet on its withdrawal no pus had escaped. A second puncture had then been made, and a large quantity of extremely foul-smelling, thick pus had escaped. Not wishing to sacrifice a sound molar tooth, an opening had been made on October 13th, under ether anæsthesia, through the canine fossa into the antrum. A probe passed into this opening had shown high up posteriorly a soft tumor of about the size of an almond. This had been cut loose from its attachments with a curette, and had been allowed to remain in the antrum. A silver tube had then been introduced for drainage and the cavity washed out, at first with a solution of permanganate of potassium, two grains to the ounce, and subsequently with peroxide of hydrogen, two or three times a day. On the fifth day the tumor—a polypus—somewhat shriveled and decomposed, had been washed out through the tube. The necrosed portions of the middle turbinate and ethmoidal cells had been removed by means of a special curette constructed to fit the narrow nasal cavity. Up to the present time some twelve curettings had been performed, with the result of removing nearly all the dead bone. The discharge from the antrum had practically ceased two weeks ago, but, as there was a slight purulent discharge from the nose, he did not feel it safe to remove the silver tube from the antrum as yet.

The other case—the acute one—was that of a gentleman, thirty-one years of age, who had been sent to him by Dr. T. J. Biggs. Three years ago there had been aching in a molar tooth on one side, and a dentist, in attempting to extract it, had broken it off. That night another dentist had "killed the nerve." Since that time there had been occasional soreness, but by October 31st this had given place to severe pain. Then the entire tooth had been extracted. Two days later a purulent nasal discharge had begun on the same side, and the pain had been temporarily relieved. A needle passed by the patient up through the tooth socket at this time had revealed the presence of a collection of pus. On November 4th there had been such severe frontal headache as to incapacitate him for business, and the discharge had become foul-smelling. On examination, November 13th, there had been found marked swelling of the tissues in the left nostril, and these had been bathed in foul-smelling pus. The result of transillumination had not been so marked as in the other case, owing to the bones having been naturally thicker, but still there had been a fairly distinct difference in the illumination on the two sides. Under cocaine anæsthesia a drill had been passed through the alveolus into the antrum and pus evacuated. No necrosis had been detected either in the antrum or nose. At the end of the tenth day the discharge had ceased. On the twelfth day the tube had been removed. Although the orifice through the alveolus had been still patent, there had been no discharge and the antrum had been empty.

Dr. Coakley also exhibited the special tube he had had constructed for the first case.

Dr. E. Le Fevre asked if in these cases there had been complaint of headache elsewhere than in the frontal region.

Dr. Coakley replied that in the cases he had seen there had been almost invariably complaint of pain over the outer half of the supra-orbital ridge. He had always looked upon this as a reflex pain from pressure, probably on the infra-orbital nerve. The occipital pain was possibly due to anæmia or other secondary condition.

Dr. Le Fevre said that he had asked this question because some years ago a patient had been coming to him frequently for the relief of an occipital headache. The usual methods of treatment had been tried without avail. Finally the patient had come to him stating that there had been a profuse discharge from the nose, and that with this there had been a great increase in the severity of the headache. Examination then had shown the antrum to be the seat of a suppurative process. As soon as the antrum had been freely opened the headache had entirely disappeared.

Dr. Joseph D. Bryant said that he would like to refer to two cases bearing upon pus collections in the antrum and obstinate neuralgia. One of these patients had been a physician, who had had for many years a persistent neuralgia at the supra-orbital notch and in the superior division of the fifth pair. No history of any discharge from the antrum had been obtained, nor had there been any deformity at the time to indicate such a condition. It had been the fashion at that time to remove the supra-orbital nerve and destroy Meckel's ganglion. He had opened into the antrum and pus had poured out very freely. The quantity of pus had astonished him in view of the fact that there had been no evidence of such an accumulation. Meckel's ganglion had then been removed, notwithstanding the liberation of the pus collection. The patient had been heard from five years later, and had still continued to be free from his neuralgia. Subsequent experience had led the speaker to think that an exciting cause of the neuralgia in this case had been the pus accumulation in the antrum.

The second case had been that of an adult woman who, without any symptoms of pus accumulation in the antrum, had had a chronic and exceedingly severe neuralgia of the supra-orbital and supramaxillary region. An opening had been made into the antrum and a large quantity of pus evacuated. A favorable prognosis had been made in this case because of the fortunate experience with the other one; but in this second one he had been mistaken, for after a short time the neuralgia had returned and had become so severe as to cause partial dementia. The chief interest in these cases was in the fact that the pus accumulations in the antrum had contributed to the neuralgia without manifesting their presence by external signs. In view of the fact that Dr. Coakley's patients had been so thoroughly syringed, he would say that it should be remembered that a continuous discharge of pus from the nostril without assignable cause, particularly if increased by change of position of the patient, should lead one to strongly suspect the presence of suppuration in the antrum.

In another case in which the antrum had been inflamed and the bone necrosed, the opening had been made in the canine fossa. The opening had persisted for eight years or more, although there had been no discharge for some time. He had seen it recommended to have a tooth put in on a plate so as to act as a plug to close an opening made through a root socket of a tooth.

Dr. Coakley said that certainly some of these patients when allowed to go on did exhibit intense neuralgia, whereas many others seemed to become accustomed to the pain so that ultimately the only symptom would be the unilateral foul-smelling discharge. This would often last for many months before coming under the notice of a physician, and then the necrosis of the bone would render the healing both difficult and tedious. He would like to emphasize the importance, therefore, of studying such cases well when a discharge of this character was present.

Dr. S. Dana Hubbard presented the following specimens:

(1) **Ulcer of the Stomach.**—An Italian, thirty-one years of age, of alcoholic habits, had been admitted to the hospital on October 12, 1894. He had been taken sick with fever and cough, and at a dispensary the diagnosis of measles had been made. He had been admitted shortly afterward to the Riverside Hospital, and at that time he had had an abundant eruption characteristic of measles. His face had been swollen so much as to resemble erysipelas. There had also been fever and delirium. Antipyretics and enemata had been given, and in a few hours he had been apparently in a much better condition. On the next day his bowels had become quite loose; he had had gloomy forebodings, and his pulse had become irregular. On the next day his temperature had remained above 102° in spite of antipyretic measures, and his delirium had become quite active. The bronchitis had improved, and the measles eruption had become less marked. Other physicians had seen the case, and had come to the conclusion that it was one of typhus fever, although the speaker had persisted in the original diagnosis of measles. The patient's condition had become rapidly worse on October 15th, and in the afternoon he had vomited some bright-red blood, and had then quickly gone into collapse. A few hours later it had been found that the percussion note over the stomach had changed from tympanitic to dull, showing hæmorrhage into that viscus. No urine had been excreted at that time for twenty-four hours. The hæmorrhage had become quite profuse shortly after this, and at 9 a. m. the following day he had died. At the autopsy the stomach had been found filled with blood, and at the lower end of the œsophagus had been three linear ulcers. One of these had been deep and extended down into the stomach. No previous history had been obtainable, but it had been surmised that he had been a "sword swallower."

(2) **Ulcer of the Ileum and Caput Coli; Typhoidal Case Mistaken for Typhus Fever.**—M. N., a young Irishman of intemperate habits, had been delirious at the time of his admission, and had had a general mottled eruption. This had been at the time of an epidemic of typhus fever, and the case had been diagnosticated by the board of health and by the hospital physicians as typhus fever. He had had a low type of delirium with more or less cyanosis; the eyes and conjunctivæ had been normal; there had been subsultus tendinum, a dry, hot skin, and an eruption all over the trunk and both upper and lower extremities. This eruption had consisted of macules, disappearing on pressure, rather deeper than pink. The abdomen had been tympanitic, but not tender. The urinary examination had been negative. On July 11th he had been semi-conscious. On the following day the pulse had been very rapid and compressible, but there had been no new groups of eruption. He had died at 3.30 a. m. July 15th. The autopsy had shown several very large ulcers. Up to the time of his death it had been thought that the case had been unquestionably one of typhus fever, but, in view of the post-mortem findings, the speaker had been led to think it an irregular form of typhoid.

(3) **Rectum in a Child obstructed by a Circular Membrane.**—A child, two days old, had been admitted to the hospital with no history other than that there had been no movement of the bowels. The external appearance of the anal region had been natural, but on passing a catheter an obstruction had been met with at about an inch. The sphincter had been dilated with the finger, which had then encountered the same obstruction. The latter had appeared to be cone-shaped. On aspiration a dark fluid had escaped. This membranous obstruction had been pulled down with forceps and a small incision made into it. A large quantity of meconium had been discharged. The next day the child had died.

Ovarian Cysts.—The President presented two ovarian cysts. They had been removed from different patients last summer on the same day. Both of these cysts appeared to be dermoid in character. One of them had been removed from a young married woman, twenty-six years of age, who had been perfectly well up to eighteen months previously. At that time she had had an early miscarriage, which had been followed by more or less pelvic distress for about a year. She had then been seen at the Harlem Hospital, and had been subjected to an Alexander's operation for the relief of a supposed retroversion of the uterus. The operation had, however, given no relief, although when seen by the speaker the uterus had been found in excellent position. Examination had shown a tumor back of the uterus. This tumor had been removed by abdominal section. Undoubtedly the Alexander operation had been done with the idea of relieving a retroverted uterus, the tumor behind that organ having been mistaken for the retro-displaced fundus of the uterus. The operation, the speaker said, had given him an opportunity of seeing the condition of the internal organs after an Alexander's operation. He had been much pleased with the results of this examination, the shortened round ligaments, as seen from within, being more than sufficient to retain a uterus in its proper position. With more than forty successful cases of Alexander's operation on his list, the speaker had concluded that failures after this operation were due to its application to unsuitable cases.

Dr. W. Evelyn Porter said that the specimen just referred to was an excellent illustration of the importance of making a careful examination under anæsthesia before performing any operation for retro-displacement of the uterus. Of course, the introduction of a sound might have cleared up the condition, but not necessarily. A careful examination under anæsthesia, however, should reveal the true condition, even though there were thick abdominal walls and more or less adhesions. Efforts were being made by some to remove such growths through the vagina, and certainly those just presented would seem, from their nature and situation, to have been excellent cases for this method of operation. Personally, however, he did not advocate the vaginal operation, because the mortality from abdominal section was already so low.

The President said he believed that the patient had had the tumor for some time, and that probably the presence of this tumor had induced the miscarriage. It was for this reason that he had stated so positively that the first operator had made an erroneous diagnosis, for it did not seem possible that the tumor could have grown there during the two months that had elapsed since the first operation.

(To be concluded.)

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of December 12, 1894.

The President, Dr. De Forest Willard, in the Chair.

(Concluded from page 348.)

Tumors of the Brain.—Dr. Alfred C. Wood read a paper entitled Subcortical Glioma of the Cerebrum affecting principally the Arm Center; Removal; Recurrence of the Growth; Second Operation. He reported the history of the case in the form of an abstract from a clinical lecture that Dr. H. C. Wood, in whose service at the University Hospital the patient had been treated, had delivered at the hospital in January, 1894.

The features of special interest in this case, Dr. Wood said, were: 1. The accurate location of the growth clinically. 2. The precision with which the tumor had been exposed by the trephine opening. 3. The immediate and complete left-sided paralysis, followed by perfect restoration of the normal condition in the face, and the return of a very fair degree of function in the leg, while motion in the arm had failed to improve decidedly, showing that the arm center had probably been completely removed, while the face and leg centers had been but slightly encroached upon at the operation, and, although suffering temporarily from the traumatism, had preserved their integrity. 4. The recurrence of the growth followed by its successful removal, the patient having remained well until the present time, seven months after the last operation and eleven months after the first. 5. The fact that the hemiparesis had not preceded the spasms and myotonia had been absent. It was maintained by Mills, Seguin, and others that both these conditions were to be noted in the subcortical lesions of the brain, and in a case recently reported by Diller and Buchanan the convulsions had been preceded by paresis.

The present position of cerebral surgery, the speaker said, marked one of the great achievements of the healing art, and had been made possible entirely through the agency of modern aseptic technique. We did not now consider it a more serious matter to expose and explore the brain than the peritonæum. Unfortunately, the affections of the brain were not so frequently suitable for surgical attack as those of the peritoneal cavity were. However, with the seat of numerous important functions of the brain already determined, with the constantly increasing certainty with which the neurologist was able to find definitely the exact seat of numerous pathological processes, with the ability to cut down upon and expose these points with precision by reason of a knowledge of cranio-cerebral topography, and with the present improved operative technique, the legitimate field of surgical interference must grow broader and broader. To-day it was not sufficient to rest with the diagnosis of a brain tumor, but, having determined its presence, it was incumbent upon the physician to extend to the patient the same opportunity for relief that would be granted him in other surgical affections.

It was evident that, in order to successfully remove a tumor of the brain without taking the life of the patient, it must be situated upon or near the convexity. From a careful study of the post-mortem records of six hundred cases of brain tumor by Starr (*Brain Surgery*, 1893) there had been found forty-six in which an operation had been indicated by the general and local symptoms, and in thirty-seven (six per cent. of the total number) the conditions had been such that the tumor could easily have been removed. The average proportion of brain tumors that were favorably situated for removal, as given by various authorities from a study of post-mortem records, was seven per cent. It was especially interesting to note that in the cases analyzed by Starr the tumor could have been removed easily and with safety to the patient in at least 78·7 per cent. of those in which the symptoms had pointed to a growth in an accessible region. There was no doubt, however, that the number would be much greater in the future for the reasons already mentioned.

In regard to the mortality of these operations, he said, the same author, from a study of the operations so far reported, had found that, in a series of eighty-one cerebral tumors, the growth had been successfully removed fifty-four times; of these patients, thirty-nine had recovered and fifteen had died, the percentage of final recoveries being therefore 48·14.

As a result of his studies Starr had stated that the large majority of the gliomata and the glio-sarcomata had been infiltrated in the brain substance to such an extent as either to have escaped detection at an operation or to have been impossible of excision. When it was considered, said Dr. Wood, that this statement was based upon a study of six hundred cases, the one reported must be considered as having had an unusually successful termination.

The cause of these tumors was as obscure as that of those situated upon other parts of the body. In a large number of the cases a history of traumatism would be obtained, but whether or not this had any ætiological bearing it was impossible to say. The patient whose case the author had reported had received a blow on the head thirteen years ago. At the time of operation there had been no evidence of injury either to the scalp or in the skull.

Dr. J. Madison Taylor said that he was especially interested in this case. Recently he had had the opportunity of again examining a patient who some time ago had met with an injury in a region similar to this. He reported the case four or five years ago. In his case there had been sensory phenomena connected with the opening in the skull which were absent in Dr. Wood's case. The patient, a boy, when two or three years old, had fallen and crushed the skull, and a spicule of bone had been forced down on the area occupied by the hand and arm centers. No harm had followed for two or three years, and then convulsive seizures had begun and continued, and when he had reached the age of twelve or thirteen years there had been large epileptoid convulsions due to the pressure over the region mentioned. The point of bone had then been removed, and an opening of considerable size left in the skull. The opening was now about two inches in length and over an inch and a half in width. There had been no convulsive seizures since the operation. In this case there existed a morbid fear in regard to injury over this opening. Any touch or pressure caused a hideous pain like meningeal headache, and it was impossible for the patient to lie on that side.

He would like to hear in the discussion some mention made of the possibilities of covering such openings. This seemed to him to be an important consideration.

In his case there were no motor symptoms whatever. The injury had been on the right side, and it was noticeable that the growth of the left side had not been so great as on the right. This was most conspicuous in the hand, which was half an inch shorter than the right. The arm was somewhat shorter also than the right. In the legs no difference could be detected. There was no spasticity whatever, and the patient, now twenty-two years old, was a skilled mechanic of great activity and strength. The speaker thought it might be important to protect this open area in some permanent fashion, and trusted that he should hear of a proper means of doing so proposed by Dr. Wood, whose reputation as a surgeon justified his expectation that the latest and best devices would be used.

Dr. Charles S. Potts said that the case reported by Dr. Wood had been under his observation for a year before operation. There were two points of interest in regard to the local symptoms. There were two symptoms which had been advanced by different neurologists, the presence of which would tend to show the existence of a subcortical lesion. The first of these was the coming on of paresis before the convulsions. In several instances this had occurred. This had happened in a patient operated on by Dr. Diller, of Pittsburgh, where a subcortical cyst had been found, paresis having been present in this case several months before the occurrence of the convulsions. In the case reported by Dr. Wood this did not occur, the convulsions having preceded the paresis.

The second symptom was the existence of persistent tonic spasm of the muscles. Dr. Mills had reported two such cases, and had rather advanced the view that always in subcortical lesions we had this condition of tonic spasm. In this case nothing of the kind had been present, although the lesion was subcortical. Other neurologists had also advanced this view.

Dr. John B. Roberts said, in reply to Dr. Taylor's question, he thought that, as a rule, no deleterious influence was exerted by these soft spots left by the removal of portions of the skull. They were usually closed by fibrous or fibro-cartilaginous tissue. He had, of course, seen a considerable number of cases where these soft spots had existed, and the pulsation of the brain could be seen, and, as a rule, the patient had had no special inconvenience. It was possible that neurologists might see a reason for the intense pain in Dr. Taylor's case in pressure from entanglement of the dural nerves in the cicatrix. We sometimes saw cases where pieces of periosteum or dura, or both, were entangled in healed fractures of the skull. He had once trephined for traumatic epilepsy where there had been a large fiber of tissue connecting the dura with the pericranium. It was possible that in Dr. Taylor's case there was some condition of this sort, the nerves being pinched by the cicatricial contraction of fibrous tissue.

Of course, as all surgeons know, we did put pieces of bone back. Such, however, was not the practice where trephining was done for intracranial pressure. In such cases the button of bone was left out so as to permit of expansion of the cranial contents. Where he removed a portion of bone for epilepsy it was not his practice to put the bone back. He had put the bone back under other circumstances, and there had been permanent closure of the opening. There was no reason why, in a case like Dr. Taylor's, if the symptoms were sufficiently serious, an attempt should not be made to form a new cranial vault by the introduction of aseptic portions of bone from the lower animals, or from a skull which was trephined at the time. He knew of one case where a little cup of thin gold had been set into the skull after the removal of a good deal of tissue after fracture. The wound had closed over this little cup of gold and healed by first intention. He thought that celluloid had also been used for a similar purpose.

The President remarked that the experience of surgeons with regard to the removal of bone was that when it was desirable to relieve pressure the button of bone was left out. The condition of this man was probably more favorable than if the button of bone had been replaced. In cases where there was no reason for leaving the bone out, and it could be kept in position, it afforded a good protection and was likely to live.

Dr. Wood said that the questions asked by Dr. Taylor had been fully answered by Dr. Roberts, with whom he agreed fully in ascribing the pain in Dr. Taylor's case to implication of nerves in the cicatrix. He had had the opportunity of examining a number of cases at varying periods after the operation of trephining, but had not met with such a condition, or with any disadvantage which had resulted from not replacing the portion of bone removed. Dr. Potts had referred to this case as one of subcortical tumor. The speaker believed that the growth had been subcortical in its inception, but that at the time of operation it had been found to have infiltrated the cortex also.

A Face Guard for Examination of Infectious Throats.—Dr. J. Madison Taylor presented a simple device for protecting the operator's face while examining the throats of those who were suspected of diphtheria or other contagious disorders, and said that it served a good end very practically. There was constant need in dispensary work among children to deliberately and fully explore the throat, and during this process much spluttering of mucus and saliva occurred, which flew in the direction of the physician or of the nurse, and might well be spared them. In making the needful applications to diseased parts, too, this could be done more quietly and thoroughly if the face was protected. The chief value of the guard, he said, was that it enabled us to secure material for bacteriological research, which often required some judgment in selecting the precise area from which to take it. An assistant could best hold the guard, made of plain glass, in a thin metal frame, or the mother could do so. The size was small, just enough to cover a face, and not too large to carry in the ordinary small instrument-satchel used by physicians. The glass slid out of the frame readily for thorough cleansing, or the whole could be laid in a sterilizing tray.

Meeting of February 13, 1895.

Some Therapeutic Uses of Acetanilide.—Dr. Oscar H. Allis read a paper entitled Acetanilide *versus* Quinine to Abort Chills and Fever, and Acetanilide as a Dusting Powder, by Dr. Benjamin H. Brodnax, of Brodnax, La. In 1890 Dr. Brodnax had first used acetanilide in a case of catarrhal fever with convulsions, in an infant nine months old, with astonishing amelioration of all grave symptoms in fifteen minutes. His next trial of the drug had been in intermittent fever in a family of three small children. The doses had ranged from two to three grains, and when the time for the chills arrived the children were asleep and perspiring. He had employed the drug quite extensively, but it was especially in chills and fever that he desired to emphasize its great merit. His mode of using it was as follows:

If there was time before the chill, he gave from a grain and a half to two grains of calomel in quarter-grain doses half an hour apart. Then, whether the bowels had acted or not, he gave, according to the age, from two to six grains of acetanilide twenty minutes or half an hour before the expected chill. Gentle perspiration, with sweet and natural sleep, usually promptly followed the administration of the drug, from which the patient wakened entirely relieved and ready to go about in half an hour.

When there was not time before the chill to administer the calomel it might be deferred until afterward; but the acetanilide could be given immediately before or during any stage of the chill or fever, with the happy result of promptly inducing sleep and gentle perspiration. Should the desired effect of the drug—viz., sleep and perspiration—not follow its administration within half an hour, a second dose of equal amount should be given.

The after-treatment consisted of the use of an acid tonic, such as a solution of eighty grains of sulphate of iron in a fluidounce of dilute hydrochloric acid. This should stand for twenty-four hours. Ten drops, in water, should be given three or four times a day.

The author had now treated several hundred cases of chills with acetanilide, and without quinine, and reported his success in the hope that others would be induced to give it a trial.

Acetanilide and boric acid, in equal parts, as a dusting powder, he had used extensively in ulcers, burns, etc. He found the powder especially serviceable in the excoriations of infants and fleshy people; with it he dusted the funis of the newborn babe, while over the vulva of the mother he placed a little cotton previously well dusted with the powder. Made into a paste with glycerin, he had used acetanilide in a vaginal tampon to allay uterine pain. In the case of a woman, sixty-one years of age, almost crazed with the itching from a pustular eruption that covered the lower part of the abdomen, the vulva, and the anus, the powder well dusted over the affected parts, after first moistening them with dilute carbolic acid, had produced six hours of consecutive sleep. She had been wakened by a return of the itching, and, rising, had washed the parts and reapplied the dilute carbolic acid and powder, and had immediately gone to sleep again. A great improvement had been observed the next day, and in a few days the parts were well. Previous to the application of the powder she had not slept well for several nights even with the aid of morphine.

Internally he had used acetanilide to correct a foul breath, also in dysentery and diarrhœa. When taken on the tongue and held in the mouth a few moments before swallowing, it had the effect of allaying the distressing thirst that accompanied fever.

Dr. J. M. **Anders** said it seemed strange at this time that any one would assume to have obtained better results from the use of acetanilide in malarial intermittents than from the use of quinine. Unfortunately, Dr. Brodnax did not offer any experimental facts upon which to base an opinion of the mode of action of the acetanilide. The well-known antiseptic action of the drug was the only explanation that he could offer. He believed that Dr. Brodnax was a careful and reliable observer, and did not question the fact that cases of chills and fever had been cured after even single doses of acetanilide. Although we had entered upon days of scientific therapeutics, he did not think that the days of rational empiricism had entirely passed away. We knew that quinine cured chills and fever. Since that discovery nothing had been brought forward that would supplant quinine in the treatment of that disease. It was not impossible that such a remedy might be found; possibly Dr. Brodnax had found it in acetanilide. The speaker had met with cases of malarial intermittents in persons in whom there was an unpleasant idiosyncrasy against quinine. Now, in such cases, a better substitute for quinine than those we had at present would be welcome and of great advantage.

The question whether or not there were objections to the use of acetanilide might be asked. The statement had been made that acute dilatation of the heart sometimes occurred in intermittents. Now it was known that acetanilide was a cardiac depressant, and in toxic doses had produced death by paralysis of the heart. While he did not consider this a bar to the use of acetanilide in the doses prescribed by Dr. Brodnax, he thought that this influence made it necessary to guard the heart during the time of its administration. If subsequent experience supported these observations the profession and members of this society should give a vote of thanks to Dr. Brodnax for a new remedy for malarial disease and one which promised to rank as a specific.

Dr. J. A. **Cantrell**'s experience with acetanilide in the treatment of disease had been, in two hundred cases or more, of skin eruption, especially intertrigo and eczema. He believed it to be the antiseptic that we were looking for in the place of iodoform. It had none of the irritating qualities that iodoform had, and in fact a great many cases of iodoform irritation had been cured by it. In cases of very moist skin disease it acted as a drying powder and also as an astringent. In other cases, like zoster, it acted well, dried up the eruption, and apparently stopped the disease; at least, it had seemed at the time as if acetanilide had produced this action.

Dr. G. G. **Davis** said that nobody would be gladder than himself for a satisfactory substitute for the foul-smelling iodoform. Combinations had been brought forward of boric acid and other substances with iodoform. The mixture of boric acid he preferred to the pure iodoform. The boric acid broke up the lumps which the iodoform contained and made it a more manageable substance as a dusting powder. He had also used acetanilide by itself, but had been unable to persuade himself that it was the equal of iodoform for surgical purposes.

Dr. **Edward Martin** had used acetanilide in about a thousand cases of suppurating wounds, and his experience was in these cases that it was superior to iodoform. It was less toxic, for one thing. It was very common among surgeons to observe in slowly healing wounds dressed daily with iodoform certain nervous symptoms, headache, and so on, indicating iodoform poisoning. This was not seen from the use of acetanilide; the wounds kept perfectly dry, there was no pus, and, of course, no odor, and the dressings kept as clean as with iodoform. He should continue to use it, he said, in place of iodoform.

Dr. **Davis** thought that the direction of surgical progress as regarded the application of powdered antiseptic substances in recent wounds was on the decline, and he had no doubt that both iodoform and acetanilide would eventually be much less used than at present. Dr. Halsted, of Baltimore, made an application of silver leaf take its place. Of course, drying powders would always be used in the treatment of suppurating wounds.

Miscellany.

Cycling as a Cause of Heart Disease.—The *Lancet* for March 2d contains an abstract of a paper on this subject which was read by Dr. George Herschell at the Eighth International Congress of Hygiene and Demography in Budapest. The chief danger of cycling, he says, is the fact that a cyclist takes much more exercise than he is aware of, and is very frequently tempted to overtax his powers. The commonest way in which the cyclist injures himself is in climbing hills. When he is nearing the top of the hill the heart is dilated with the strain put upon it by the increased arterial tension. If the rider stopped at this point to recover himself, no harm would be done; but in too many cases, as there are only a few more revolutions of the wheel to carry him to the top, he redoubles his exertions, putting further strain upon a heart already taxed to the utmost limit of its capacity, and in those few moments damage has been done to the heart from which it perhaps can not recover. The effects of the strain of excessive cycling upon the heart may be divided, says Dr. Herschell, into four groups: 1. Simple hypertrophy of the heart. 2. Acute dilatation of the heart, ending either in recovery, if the cause is removed, or in death if it persists. 3. Chronic valvular disease of the heart. 4. Functional derangement of the heart.

Simple hypertrophy of the heart is apt to occur in well-trained riders who do a great deal of cycling, and may be looked upon as a compensatory effort of Nature to enable the work to be performed. Cycling for extended periods of time at a great pace, like other forms of prolonged muscular exertion, enormously increases the blood pressure in the arteries. Hypertrophy of the heart follows the law which governs all muscles—that increased work is followed by increased growth if the nutrition is kept up. Moderate degrees of hypertrophy are quite compatible with health, and are usually unattended with symptoms. The danger, however, is in the ultimate effects which are liable to ensue. The heightened blood pressure in the arteries gradually produces a hard, inelastic condition of their walls, which perpetuates and increases the hypertrophy. Moreover, these altered arteries are prone sooner or later to undergo degenerative changes, and, having lost their normal elasticity, to give way on some occasion of sudden strain. As a rule, the athlete enjoys vigorous health for the few years during which he is actively working, and his heart is only enlarged enough to meet the constant demands upon it; but when the cyclist, no longer in his first youth and unable to compete with younger men, relaxes his efforts, his heart is now too large for the work it is required to do, and the symptoms of hypertrophy soon make themselves felt. Hypertrophy following overexertion may disappear under proper treatment, if taken early and the cause removed, but when it has persisted for a number of years this is rarely, if ever, possible, and ulterior changes are apt to ensue. It is well known that athletes are liable to rapid deterioration of health when they relinquish their active exercises.

It is also probable that an hypertrophied heart may undergo degenerative changes while in active daily work. This is rendered probable by what is known to happen in the case of file-cutters, whose work consists in quickly flexing their biceps. The effect of this is to cause hypertrophy of that muscle, but after a few years it atrophies. This is so certainly known in the trade that file-cutters receive very high wages, based upon the probable working life of their hypertrophied biceps. It is possible that in this way we may have an explanation of the well-known fact that compensatory hypertrophy of the heart can not be preserved indefinitely, although the valve lesion may be stationary. Hypertrophy of the heart produced by cycling may terminate in one of these ways: 1. Recovery. 2. Valvular disease and disease of the aorta. 3. Degeneration of the heart muscle.

Acute Dilatation of the Heart.—Until the individual first shows signs of being "out of breath" both ventricles are sending equal quantities of blood into the pulmonic and aortic systems respectively in equal periods of time. At each beat the left heart is withdrawing from the lungs exactly the same quantity of blood that has been forced into them by the right heart. And it is evident that the oxygen supplied to the blood is exactly equal to what the body requires. Respiration and the heart's action, although hurried by the exercise, are carried on normally and without unpleasant sensations. If, however, the exercise is continued, the heart is stimulated to contract at such a rate that the respiratory muscles can not keep pace with it. Besides, the time during which it is possibly for the blood to come into contact with the oxygen in the lungs is shortened.

"Shortness of breath" is thus produced, the sensation being, as we all know, the cry of the blood for more oxygen. Accompanying this will be obstruction to the circulation through the lungs, and a small abnormal amount of residual blood will remain in the right ventricle. If the extreme muscular efforts are continued the excess of venous blood in the pulmonary vessels will increase with every beat and the right heart will rapidly dilate. At this stage the quantities of blood thrown out from the two ventricles are unequal. The heart continues beating and expelling the whole of its contents with the exception of the residual blood in the right ventricle. At last a moment comes when from fatigue the muscles at the base of the ventricles are no longer able to adapt the ring to which the bases of the valves are attached, so that the valves will efficiently close them. And since the whole of the valvular ring is expanded while the valves have retained their former size, regurgitation must take place. If at this point the individual ceases his muscular efforts, in all probability the heart will quickly recover itself; but if the recovery is not complete there may remain permanent incompetence of the tricuspid valve. On the other hand, if the exertion is kept up, the heart, being unable to pass on the whole quantity of blood that reaches it at each beat, undergoes rapid dilatation of the right ventricle and death by asystole is the result. Of such a character doubtless are the cases of sudden heart failure which has occasionally caused the death of riders even in the course of a journey. The following fatal case of acute overstraining of the heart occasioned by cycling came under the author's notice in 1884, and the notes may be of interest as showing the symptoms which may be expected. A man, aged forty-six years, had lately taken to cycling and used a heavy tricycle. After having followed the sport for three weeks and made some short journeys, he attempted to ride from Brighton, where he resided, to London, a distance of fifty-three miles. Dr. Herschell was called to see him about seven o'clock in the evening at his hotel and found him cyanosed and very exhausted. There was intense dyspnœa, and his pulse was 144 a minute and very feeble. His heart's action was irregular and weak. Dullness extended transversely from a quarter of an inch outside the right parasternal line to the left mammary line. The apex was beating in the sixth intercostal space in the left mammary line. A systolic bruit was apparent both over the mitral and tricuspid areas, and there was pulsation in the veins of the neck. The urine contained a trace of albumin. Unfortunately, in spite of treatment, he gradually sank, and died early next morning. The author was informed that the patient had never previously exhibited any symptoms which pointed to heart disease. The absence of marked hypertrophy of the heart would also negative the supposition. No post-mortem examination could be obtained. The case was evidently one of acute dilatation of the heart in a man not so young as to be able to undertake with impunity such a muscular task as a ride of fifty-three miles against time. The overstrained and distended heart was unable to contract vigorously enough to restore the equilibrium, and fatal syncope was the result. Acute dilatation of the heart produced by cycling, then, he says, may terminate either in recovery or in the production of valvular disease.

Chronic Valvular Disease of the Heart.—Dr. Herschell believes that the mechanism by which permanent valvular disease of the heart is produced by overstrain from exercises such as cycling is twofold: 1. As a sequel to acute dilatation of the heart. The ring, to which the bases of the auriculo-ventricular valves are attached, having been once stretched sufficiently to allow regurgitation to take place, does not recover itself, but remains permanently enlarged. We shall thus have regurgitation into the auricle. The patient will then pass through the usual stages of compensatory hypertrophy, with probably final breaking down of compensation. 2. As a result of hypertrophy. It is probable that the constant high tension in the arterial system, with the resulting strain upon the valves, occasions slight injuries to their surface with the subsequent production of sclerotic changes. In cases which had come under his notice he had found that the great majority had suffered from lesions of the aortic valves, and he had reason to believe that the hypertrophy always antedated the valve mischief. This, he says, is only what we might expect. The aorta, unlike the heart, can not strengthen itself against an excessive strain, as its activity is practically nothing more than the recoil of elastic tissue. Strain of such a structure will cause chronic endarteritis and loss of elasticity. If we examine such an artery with a microscope we shall find small points of endarteritis upon the inner coat and patches of diffuse granular exudation in the middle one. The next step will be dilatation or pouching of the aorta just above the valves which are as yet competent. Many cases come under observation in this condition, and the following may be taken as a typical example: A man, thirty-one years of age, attended the author's out-patient service at the hospital in the autumn of 1892. He complained of palpitation and shortness of breath. During the summer he had been constantly riding the bicycle, going on an average sixty miles a day for three days a week. On examination, there was evident hypertrophy of the heart, the apex beating in the anterior axillary line. The right margin of cardiac dullness was half an inch to the right of the sternum. The arterial dullness over the upper edge of the sternum was decidedly wider than it should be, pointing to dilatation of the aorta. There were no bruits and no thrills, but there was marked accentuation of the aortic second sound. This would probably be the first stage in the production of valvular disease. As regards the further course of such a case there are, says the author, three possibilities: 1. The aortic ring may be stretched by the pouching of the aorta, and regurgitation may take place. 2. A valve may actually give way. 3. Sclerotic changes may take place in the valves. In any of these cases the disease will follow the usual course of valvular trouble produced by other causes.

Functional derangement of the heart as a result of cycling, he believes, is much commoner than is generally supposed. In many cases it is slight and the patients recover quickly, so that they are overlooked or the trouble is ascribed to other causes. "Irritable heart," which was a term applied by Da Costa to the chronic tachycardia observed among the men who were engaged in the civil war, is a condition, says Dr. Herschell, which resembles in many respects the functional affections of the heart which are seen as the result of strain from cycling. It is extremely probable, he says, that they are identical as regards pathology. He believes that these conditions always follow a temporary dilatation of the heart in the following manner: It has been shown that right-sided dilatation of the heart is invariably produced by the prolonged strain of too rapid cycling. This dilatation having subsided when the cause has ceased to operate, the heart remains irritable from the stretching that its muscular fibers have undergone. It would seem in these cases, he says, as if the inhibitory function of the pneumogastric nerve was suspended, for when the heart has so far recovered itself from the immediate effects of the strain that the pulse rate has fallen to normal, any slight exertion or emotion will bring the palpitation on again. The symptoms which the author has observed in these cases are the following: 1. Palpitation of the heart, which is very distressing, and usually occurs on the slightest exertion or emotion, and, if not relieved by proper treatment, may possibly end in the permanent establishment of a "rapid heart." 2. Shortness of breath, which usually accompanies the palpitation, and comes on after the slightest exertion. 3. The sensation of sinking at the epigastrium. In certain cases, says the author, this has been one of the most prominent symptoms. 4. Subjective sensations in the region of the heart. The patient is conscious of the heart's action, and often feels as if it were going to stop. 5. Intermittency of the heart's action. In several cases the author believes that he has traced the origin of this condition to a temporary dilatation of the heart as the result of hill-climbing. 6. Anginoid symptoms. Two of the author's patients complained chiefly of pain in the cardiac region, coming on in paroxysms, running down the left arm, and accompanied by a feeling of suffocation and impending death.

These, then, says Dr. Herschell, are some of the possible evils of excessive cycling. On the other hand, there is the undoubted fact that in moderation and under proper conditions it is one of the most health-giving forms of exercise. In established heart disease, strange as it may seem, it is one of the most potent remedial measures. Beginning with the lowest gearing for the shortest periods, and on level roads, carefully graduated cycling is able to establish that compensatory hypertrophy which alone can enable the victims of valvular disease of the heart to live in comfort. For this reason the author recommends it. With regard to the preventive measures and precautions against the dangers of this fascinating sport, the author lays stress upon the following points: 1. The use of a low gear, which has been described in another part of the paper. 2. The upright posture in riding. The stooping posture, so common among the modern cyclists, by contracting the chest prevents the proper expansion of the lungs, and by interfering with the aeration of the blood causes the condition of breathlessness to come on more quickly. 3. Proper food when riding, and the avoidance of muscle poisons, such as beef tea. It is probable that the digestive powers of the stomach are inhibited during riding, and from this it follows that the ordinary food taken on the road is not digested, and does not provide the cyclist with energy. Dr. Herschell advocates the use of peptonized gruel or soup. 4. The cyclist must avoid preparations of kola and coca. These, by numbing the sense of weariness, enable the rider to do injuriously excessive work, almost without his knowledge. 5. On no account should the cyclist continue riding after he has begun to feel short of breath, or when there is the slightest sensation of uneasiness in the chest. This simple precaution is one which can not be too earnestly recommended.

The Treatment of Diphtheria with the Antitoxine made at the Pasteur Institute.—In the March number of the *New York Therapeutic Review* there is an article on this subject in which the writer remarks that the universal interest manifested by the medical profession in the antitoxine treatment of diphtheria has prompted him to give further information as to the mode of preparing the new therapeutic agent at the New York Pasteur Institute. The first thing to be considered, he says, is the selection of the horses which are to produce the antitoxine. Every animal is thoroughly examined by Professor A. Liautard, of the American Veterinary College, who rejects every horse showing any trace of organic or contagious disease. The horses are then placed in the college hospital and are inoculated for the purpose of discovering whether they show any reaction denoting the presence of glanders or tuberculosis. In connection with this subject, says the writer, it is interesting to note that on an average three or four out of every ten horses subjected to these inoculations are rejected, showing that glanders is perhaps a commoner disease than has hitherto been suspected. The horses that have been found to be in perfect health after these rigid tests are placed in stables of which the stalls are thoroughly washed and disinfected every day. The cultures employed are filtered for the purpose of obtaining the toxine, but before this is done they are examined under the microscope, and if they contain other bacteria than those of diphtheria, they are rejected, as an association with other microbes might produce different and dangerous toxines.

After a horse has received a number of injections, both into the veins and under the skin, and ceases to react to the effects of large doses, its serum is tried upon guinea-pigs. If the power of immunity against a mortal dose of toxine is found to be too weak, further injections are practiced upon the horse until the degree of the power of immunity becomes satisfactory. As to the efficacy of the serum and the conscientious way in which it is prepared, says the writer, an investigation of the results obtained by the physicians who have made use of it is the only criterion of value.

It is the intention of the institute to supply the strongest antitoxine obtainable, stating the strength and allowing physicians to vary the dose according to the age of the patient and the severity of the disease, rather than to supply it in various degrees of potency.

While it has been impossible, says the author, to hear from all the physicians who have used the antitoxine, the many letters published in the same number of the *Review* and those taken from other journals make up a valuable contribution to the literature of this subject. These letters, he says, mention sixty-two cases with only one death. While the author does not for a moment assert that such an extraordinarily low mortality is sure to occur under the use of the antitoxine, the severity of many of the cases shows the excellent results that may be expected. Other cases are mentioned where the serum was injected most successfully for the purpose of conferring immunity upon children and adults who had been exposed to infection.

The writer refers to an article which appeared in the *Boston Medical and Surgical Journal* for January 24, 1895, in which Dr. F. G. Morrill, of Boston, relates that three outbreaks of diphtheria occurred at the Children's Hospital, and on each occasion admissions had to be suspended. Every patient in the hospital, regardless of the malady for which he was under treatment, was subjected to an injection of five cubic centimetres of the serum prepared by the Pasteur Institute, and then admissions were continued with the condition that each child should be subjected to an injection. Not a single fresh case occurred. Three nurses and thirty-nine children were injected for immunity, and the ill effects were unimportant. Of the nine children injected for diphtheria, two of the sickest ones sat up in bed and enjoyed themselves in twenty-four hours after receiving a dose of fifteen or twenty cubic centimetres. All the other children did well with one exception. In another number of the same journal Dr. Kenelm Winslow reports four cases of diphtheria in which the patients improved wonderfully, as regarded both general symptoms and local lesions, after the use of the antitoxine, which had been employed on the first day of the disease. Dr. Winslow also speaks of the occurrence of annoying urticaria in some of his cases, and appears to object to the statement made by the institute that no local reactions follow the use of the antitoxine. This statement, says the author, is absolutely true as regards septic and inflammatory reactions due to impurities contained in the preparations. The occurrence of urticaria and erythema taking place in a number of cases has been observed by Roux and by the German physicians, and there is as yet no means known of preventing its occurrence in a certain proportion of cases. The possibility of its taking place is always present, but certainly can not be considered as a contraindication to the use of antitoxine. Between probable death and possible erythema, says the writer, the choice should easily be made.

The Pasteur Institute furnishes antitoxine to the provincial board of health for the province of Quebec, where it has been used with good results. In New Orleans a commission composed of some of the ablest physicians began to investigate the matter from the first. The commission has employed the antitoxine in over a hundred cases with very good results.

The institute, therefore, says the author, may congratulate itself upon the fact that the long period of preliminary work is over, and that the treatment of diphtheria has resulted in a lower mortality than has hitherto been observed.

An Anecdote of the Late Dr. Oliver Wendell Holmes.—In the *Boston Medical and Surgical Journal* for March 14th we find the following letter from Dr. S. L. Abbot, of Boston:

"An excellent paper on Microscopical Reminiscences, by Dr. Palmer E. Cole, published in the *New York Medical Journal* of February 23d, contains many pleasant recollections of Dr. Oliver Wendell Holmes and pays a well-deserved tribute to his great interest in the microscope, and his ingenious invention of various useful adjustments to it in those early days of its use by the medical profession. He also quotes a passage from his last letter to him, in which he says:

"'My most successful contrivance was a stereoscope of a very simple pattern, which had a great run, and has remained popular, I think, to the present time.'

"It is well, I think, to remind your readers that this little invention, the hand stereoscope, is one of Dr. Holmes's contrivances, as I dare say many of them, of the younger generation of doctors, are not aware of the fact. I myself have found it a very great convenience.

"Dr. Cole's paper tempts me to give you a reminiscence of my own, which fully illustrates Dr. Holmes's *bonhomie* and at the same time his honest self-appreciation.

"In my early student days in the Tremont Street Medical School, after a recitation in anatomy to Dr. Holmes, at which I happened not to be present, he sang to the class a new song of his own composition—probably one of his humorous medical productions, but of this I am not quite sure. Two days after, while he and I were engaged together in the dissecting room, I casually remarked, 'I greatly regret not being present at the last recitation in anatomy.' 'Why?' he asked. 'Because I lost the song you were so kind as to sing to the students.' After a moment's pause, with his head turned down a little toward one shoulder, and a peculiar compression of the lips—an attitude and expression of the mouth which all his old friends will remember—he said abruptly, 'Would you like to hear it?' 'Why, of course, doctor, I should,' was my reply. 'Well, I'll sing it to you,' was his immediate response. So he laid down his scalpel and forceps, and standing facing me, with the poor relic of humanity on the table between us, he began, and went through the whole of it, with as much enthusiasm as if he were singing to a thousand people. After the prolonged applause of his audience of one had subsided, he said, 'Do you like it?' 'Why, of course, doctor,' said I, 'no one could hear it without liking it.' 'Well,' said he, 'it *is* good. *No one but a fool would pretend he doesn't know when he has done a good thing.*'"

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 21st inst., the special order was to be a paper on Disease of the Eye Dependent on the Grippe, by Dr. Thomas R. Pooley, and one entitled Diseases of the Ear Dependent on the Grippe, by Dr. Edward B. Dench.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 28th inst., a paper entitled Total Extirpation of the Uterus by Abdominal Section will be read by Dr. Ernest W. Cushing, of Boston, and Dr. Grace Peckham-Murray will read a paper the title of which is to be announced. Cases will be reported and specimens and instruments exhibited.

The Ohio State Medical Society.—The fiftieth annual meeting will be held at Columbus on May 15, 16, and 17, 1895.

THE NEW YORK MEDICAL JOURNAL, March 30, 1895.

Original Communications.

AN APPARATUS FOR WASHING OUT THE STOMACH AND SIGMOID WITH A CONTINUOUS CURRENT, WITH RETURN STOMACH OR RECTAL TUBE.

By JOHN C. HEMMETER, Ph. D., M. D., etc.,
BALTIMORE.

In making known a new instrument or apparatus for the mechanical treatment of gastric and intestinal diseases, a brief abstract of the history of the stomach tube may perhaps not be out of place. That it is a comparatively recent instrument may be gathered from the despairing remarks of Th. Frerichs (article Verdauung, Wagner's *Handwörterb. d. Physiol.*, iii, Abth. i, S. 789, published 1842–1853): "The disturbances of the gastric secretions," he says, "and the instances that bring them about, constitute a domain that has been very little investigated. There is little hope of seeing this subject, which is so important for the pathology of digestive diseases, cleared up in the near future, because *insurmountable difficulties* are in the way of obtaining digestive material in man." It was reserved for the versatile Kussmaul to overcome the insurmountable difficulties of Frerichs (quoted from Martins and Lüttke, *Die Magensäure*, Stuttgart, 1892). He demonstrated in 1869 (Kussmaul, Ueber d. Behand. d. Magenerweiterung durch eine neue Methode. m. d. Magenpumpe, *Deutsch. Arch. f. klin. Med.*, 1869, Bd. vi, S. 455) that the stomach pump—which Dr. Wyman had invented, and had first been used by another pioneer American physician, Dr. Bowditch, for the evacuation of empyema—made it possible to obtain the contents of the human stomach at all times without difficulty.

It is certain that the stomach pump was recommended for removal of stomach contents in diseased conditions prior to Kussmaul—for instance, by Lefèvre in 1842 (Martins and Lüttke, *Die Magensäure*), and, according to Leube (*Die Magensonde*, 1879, Erlangen), also by Canstatt in 1846. But the extensive use of the instrument was caused by the practical proceedings of Kussmaul, only for therapeutical purposes, however.

The first one to employ the stomach tube for a purely physiological investigation was Szabo (Szabo, Beiträge zur Kenntniss der freien Säuren d. menschl. Magensaftes, *Zeitschrift f. physiol. Chemie*, 1877–'78, Bd. i, S. 140), who analyzed in Hoppe-Seyler's laboratory the gastric contents of a patient from Kussmaul's clinic, having removed them for this purpose by a stomach tube. The first one to use the tube for establishing a diagnosis between gastrectasia with and without carcinoma ventriculi was von den Velden (von den Velden, Ueber Vorkommen u. Mangel d. freien Salzsäure im Magensaft bei Gastrectasia, *Deutsch. Arch. f. klin. Med.*, Bd. xxii, S. 369).

Up to the time of Ewald's suggestion of substituting a soft rubber tube—gas hose, as he called it—for the hard one (Ewald, Virchow's *Archiv*, ci, 1885, S. 330: Anwendung eines weichen Gummirohres als Magensonde), now about ten years ago, all stomach tubes were made of inelastic, non compressible, hard silk rubber. They had to be inelastic, since they were intended for use with the pump only. These tubes were not free from danger, and cases were reported in which the gastric mucosa was torn away and brought up with the stomach contents.

In this period falls the introduction of enlarged Nélaton rubber catheters as stomach tubes by Leube (Leube, *Die Magensonde*, Erlangen, 1879). Not long after, the dangerous pump was replaced by a method of siphoning with the help of a funnel, according to the plans of Th. Jürgensen, L. Rosenthal, Hodgen, and others. This soft elastic stomach tube, with a rubber funnel attached to it, answers all practical purposes; particularly true is this in case we simply desire to make a quantitative or qualitative analysis of a test meal obtained by Ewald's expression method. But in obstinate cases of chronic gastritis, in gastrectasias from various causes, with advanced decomposition of gastric contents, it is often a matter of half an hour to an hour before the stomach can be siphoned clear. With a view to more effectively carrying out lavage and shortening the time it requires, Ewald and Rosenthal advocate the use of an irrigator placed above the head of the patient on a shelf. To the outer end of the stomach tube is attached a Y-shaped glass tube, one arm of which is connected with an elastic tube running to the irrigator, while the other arm is connected with the discharging tube. Through the irrigating tube water runs into the stomach, the discharging tube being compressed by the fingers. When the patient feels the distention, the tube from the irrigator is closed by pressure of the fingers; the vertical tube discharging from the stomach is opened by releasing finger pressure, and the organ is emptied. By repeating this the organ may be filled and emptied as often as desired. (See Ewald, *Diseases of the Stomach*, English translation, p. 65; also William H. Welch, article on Dilatation of the Stomach, Pepper's *System*, vol. ii, p. 604, both with illustrations.)

The instrument to be described in the following accomplishes all that Rosenthal's apparatus does, without using alternate pressure on discharging and irrigating tube. In this new method water runs into and out of the stomach continually through one and the same tube.

The apparatus consists, first, of a large glass jar (Fig. 1), *a*, having a stopcock, *f*, near the bottom, graduated into divisions, each indicating one hundred cubic centimetres, and placed on an elevated platform, shelf, or the like. Secondly, of a double or return stomach tube, which differs from the ordinary stomach or lavage tube of Ewald by the presence of a partition of soft rubber running through its entire length and seen in cross section at *l*, really dividing the instrument into two canals, *b* and *c*. The canal for the inflow, *b*, connected at *f* with the faucet of the reservoir bottle, is only half of the caliber of the outflow canal, *c* (this is not very apparent in the accompanying drawing)—a most important provision to insure at all times a greater facility to the outflow than to the inflow, otherwise the stomach may become overloaded with water, which, owing to the elevated position of the reservoir, runs into the stomach very readily and in greater quantities than could be carried away by an outflow tube of the same size as the inflow tube. The connecting piece, *k*, with its four branches, *r r r r*, is made of hard rubber to prevent any stretching of the two tubes, *b* (inflow) and *c* (outflow), at *h*, the junction. The end of the return tube has side openings, *p p*, in addition to the openings at the lower end, which does not terminate abruptly, as in the sketch, but is beveled off smoothly and tapers, as shown at *m*.

In case the apparatus is to be used for washing out the rectum and sigmoid, the patient must be placed in the position suggested by Dr. Howard A. Kelly for atmospheric distention of the female bladder and rectum (*American Journal of Obstetrics*, vol. xxix, No. 5, 1894; also vol. xxx, No. 1, 1894). In this position the double rectal tube depicted in Fig. 2 is slowly introduced, consisting simply of the smaller soft inflow tube, *i*, united with the larger outflow tube, *o*, and separating at *a*, not ending bluntly, as shown in cross section at *b*, but tapering, as shown in Fig. 2 at *c*. The gastric tube is useful in cases of considerable gastric decomposition or accompanied with great masses of mucus and requiring much time with the single tube. The inflow and outflow can be controlled by the pressure of the fingers of the patient if necessary. The same precautions are necessary with this as with the single tube in its employment. The double rectal tube is very useful in membranous colitis. With Dr. H. A. Kelly's method I have frequently succeeded in exposing the entire rectum and the first turn of the sigmoid flexure to view in direct sunlight. It is possible to pass a very soft rubber rectal tube of my pattern entirely through the sigmoid flexure into the descending colon in the cadaver. But it must be done before rigor mortis sets in, the subsequent rigidity rendering it impossible. In order to pass it through the sigmoid in the cadaver, the rectum must first be cleaned, the subject inverted so as to have gravity favoring the tube, and when the first turn of the sigmoid is reached the water is started to run from the inflow tube. This will keep pushing away folds of mucous membrane and excrement and facilitate the successful passage of the tube.

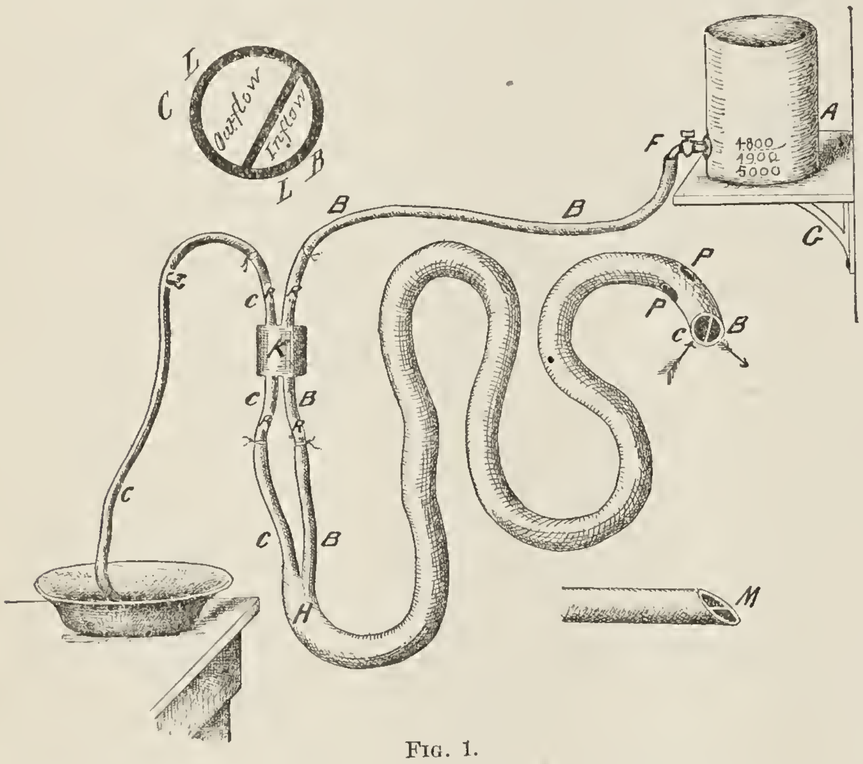

Fig. 1.

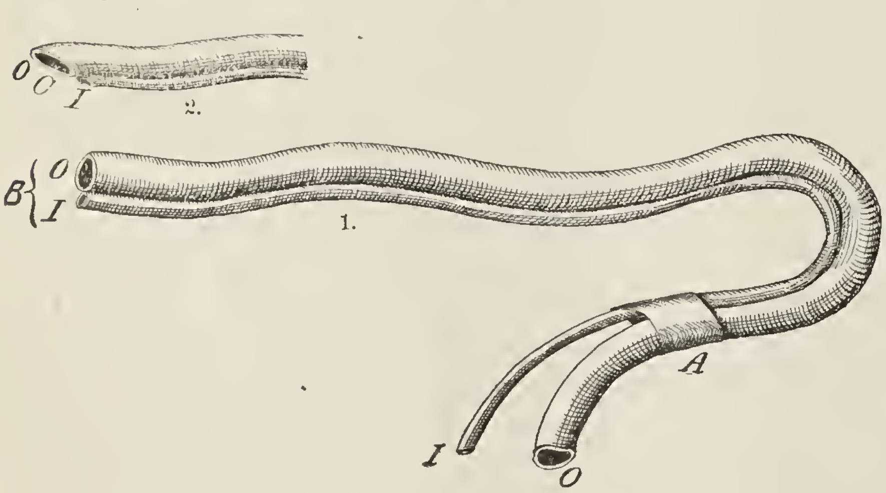

Fig. 2.

From these results on the cadaver it is conceivable that we may yet be able to pass a tube into the transverse colon in the living subject.

During March, 1894, I had under my observation a medical practitioner who learned to use the double rectal tube on himself without difficulty. He had shown symptoms of membranous colitis at intervals for three years. When the attacks were severe they were accompanied by intense rheumatic pains in the left shoulder and running down the left arm. For these rheumatic pains he had treated himself for a year by various remedies usually considered useful in rheumatism and neuralgia, but with temporary relief only. I suggested to him that his pains were perhaps due to the absorption of toxic substances from the colon and sigmoid, and advised regulation of diet, rest, and washing out of the colon. He informed me that he has had no return of the rheumatic pain since May, 1894 (I heard from him on January 10, 1895, the last time), but that he is in the habit of washing out his colon once a week. He asserts that purging does not afford him a complete relief of his intestinal and rheumatic symptoms. During July, 1894, he was traveling for recreation, and, not being able to use his rectal tube in the hotels, on railroads, etc., he tried to keep his colon as clean as he could by the use of purgatives. During this time he felt a return of the rheumatism in his left arm. On his return home the rheumatic pains again yielded to lavage of the colon.

In concluding this communication I wish to emphasize that double or return stomach tubes have been made before the one described herein was brought out, but so far as I know they were made of hard, inelastic material and were found to be of no practical utility. I inquired at instrument factories of all of the large eastern cities without success, not having found any mention of a double or return stomach tube in literature of the subject. A surgical mechanic who had visited the last Paris International Exposition stated that he had seen such tubes there, but they were very short, inelastic, and as hard as the old tubes formerly used with the pump. It is possible that what he described is a return catheter for the male bladder. The return stomach tube is 1·3 centimetre in diameter and can be ordered of any desired length; the double rectal or sigmoid tube is 2·3 centimetres broad one way, and 1·5 centimetre in the direction at right angles to the first measurement.

1734 Linden Avenue.

THE PLASTER OF PARIS, WOOD, ALUMINUM, AND OTHER SPINAL SUPPORTS.*

By A. M. PHELPS, M. D.

I am exceedingly obliged to Dr. Sayre for the courtesy which he has extended by asking me to discuss the paper of the evening. On nearly all of the points which have been raised in this paper I fully agree with him. And that the plaster-of-Paris corset is one of the best supports for Pott's disease of the spine ever devised my experience verifies. Without it it would be difficult for me to conduct the clinics and dispensaries of which I now have charge. While it has many defects and demerits, its good qualities will more than overbalance the bad, and because of this, and because its application is based upon accurate scientific principles, I give it a most hearty indorsement.

I have used the plaster-of-Paris corset from its very first inception. I have watched its growth from the time of its first application; I have seen it fail through bad materials and worse application; I have seen it bitterly fought against by its opponents, receiving just and unjust criticisms. I have watched its methods of application gradually reconstructed, the materials from which it is made improved, and I am free to say, after fourteen years of experience, that it is one of the best supports to be used in Pott's disease of the spine the world has ever seen. The arguments which have been urged against its use are most fallacious. That it does *not* support is argued by some of its bitter adversaries. But when in Pott's disease of the spine a patient is suspended and a jacket properly adjusted, he is at once relieved from a condition of pain and suffering, and to that extent that any amount of pressure upon the shoulders does not produce pain. I am convinced that something does support. If it is not the jacket, what is it? A patient with lateral curvature of the spine is suspended; a plaster corset with lacings is made to fit him in this suspended and straightened position. After the corset has been adjusted the patient is three inches taller than before its application. If the corset does not support, what makes him three inches taller? I have personally observed this change in many cases, and no amount of argument advanced by the opponents of the plaster-of-Paris corset can possibly disprove a clinical fact. One fact is worth more than a thousand theories. The first book written on steam navigation by an Englishman, in which he attempted to prove that a steamship could not cross the Atlantic Ocean, was a failure, because, after his book was printed, it was brought to this country by the first steamship. And so it is with this argument. The patient *is* three inches taller with the corset than he is without it. What makes him three inches taller? Support. It is true that this corset becomes filthy; vermin invade it; but it is inexpensive, and can be changed, if necessary, once a month. Much better this than the application of a steel brace that a mother or nurse can remove at liberty, handling the child in such a manner as to produce trauma and injury to the diseased vertebra. The steel braces must be frequently removed or else excoriations will occur. They excoriate and are uncomfortable if they give support, which is one of the strongest arguments against their use in Pott's disease of the spine.

We are all agreed, I believe, that the best orthopædic machine ever devised is the human hand; guided by intelligence, it applies forces for the correction of deformity more delicately and perfectly than any inanimate object ever invented. Plaster of Paris is applied to the deformity. While in the plastic state the hands mold it to the corrected position, and hold it there until it is hard or set. Can you not see that now the plaster of Paris continues to do the work exactly as the human hand did it? In other words, plaster of Paris is effective as a brace or support only in proportion to the amount of gray cerebral matter concerned in its use. In the absence of the latter it is worthless. Proper materials must be used, else the plaster will not set rapidly. H. B. Claflin & Company make me a perfect hospital crinoline, No. 100, containing just the proper amount of sizing and no indigo. The White Dental Manufacturing Company, of New York, puts up the plaster in tin cans hot from the oven. These two materials make, when put together properly, a perfect bandage that will set in five minutes. This rapid setting of the plaster is necessary, because the hand holds it to the corrected position of the deformity. This material, with the stockinet sold by Ford, completes the materials necessary to make a perfect corset. The crinoline costs six cents a yard, the plaster of Paris three cents a pound, and the stockinet thirty cents a yard. A corset for a child six years old should weigh not to exceed one pound and a quarter, and for an adult two pounds and three quarters. This makes a support as light or lighter than the steel brace, and it supports as the steel brace can not.

What the profession wants is a proper brace—one that will apply extension and relieve pressure, and also act as an antero-posterior support, transmitting the weight of the body through the transverse and articular processes, thereby relieving the bodies of the diseased vertebræ. Such a support is to be found in the plaster-of-Paris corset; it removes from the nurse or the mother the possibility of interfering with the dressing. By its particularly broad, even surfaces, if properly applied, it does not excoriate, and can be worn for one or two years with comfort. Springing or bending the corset antero-posteriorly makes it an antero-posterior support. Thus we see that it combines the good qualities of all the steel braces that have ever been devised, and one more, and that is *extension for the relief of pressure.* The corset is heavy when improperly made. It is not so porous as we are led to believe. Its thickness makes it objectionable to women. This has led me to substitute for it the wooden corset (Fig. 1); the paper corset, made from paper such as is used in making paper boats; and the aluminum corset (Fig. 2). These corsets combine all the good elements of the plaster-of-Paris corsets, and, in addition to these, lightness, durability, and thinness, which do not interfere with the clothing of women.

In clinical work and among the poor patients the plaster of Paris corset fills the gap that nothing else can possibly fill. These patients, supported by steel braces, I am informed, and I have observed, almost invariably go on from bad to worse as regards deformity; they certainly do in disease above the eighth dorsal vertebra. I feel satisfied that in this class of patients the steel braces will be utterly abandoned in the very near future; they certainly should be in lateral curvature of the spine in any case. Now, in private practice, I know of no better dressing for Pott's disease than a light and thin plaster corset during the acute stage, after that the corsets that I have already mentioned, the use of which will be found to be more comfortable and agreeable to the patients. The difficulty with leather corsets is that they fail to support, because they do not retain their shape; as a boot changes on one's foot, so will a leather corset change upon the body. The spinal support for Pott's disease of the spine must be unyielding and firm. The paper corset first made by Vance is, in some respects, a good corset; but it is not desirable; it is difficult to make, and it is somewhat expensive. Since the time of Vance other paper corsets have been made according to different formulæ; but they are made of paper and are really only modifications of Vance's idea. The corset made by Weigel, of Rochester, N. Y., from the paper pulp used by printers in making their matrices, he alleges, is durable and comfortable. The corsets made for me by Horace Waters & Co., of Troy, N. Y., after the paper-boat formula, have proved most satisfactory; but it is more bother to get them than I care to endure. Other corsets made in this city, similar to that made by Vance, are open to the same criticisms as those mentioned. The jury mast and corset, when adjusted so as not to lift the head, but to draw it backward so as to transmit the weight of the head through the transverse and articular processes, makes the most efficient dressing that I know anything of, and particularly in upper dorsal and cervical disease. So far as I have observed, the deformity does not increase, as is the case with a steel apparatus in diseases of the upper dorsal region.

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* Prepared to be read before the New York Academy of Medicine, January 31, 1895, in the discussion of Dr. Sayre's paper published in the *Journal* for March 16th and 23d.

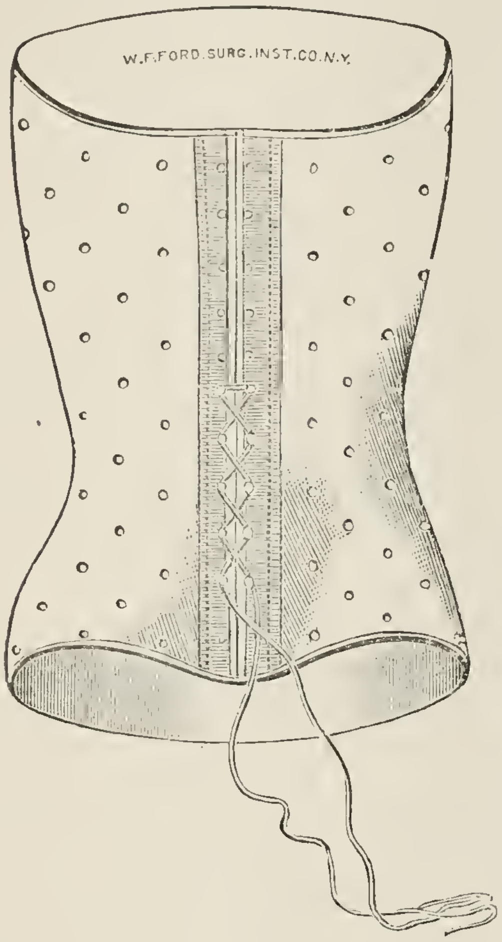
W.F.FORD SURG. INST. CO. N.Y.

Fig. 1.

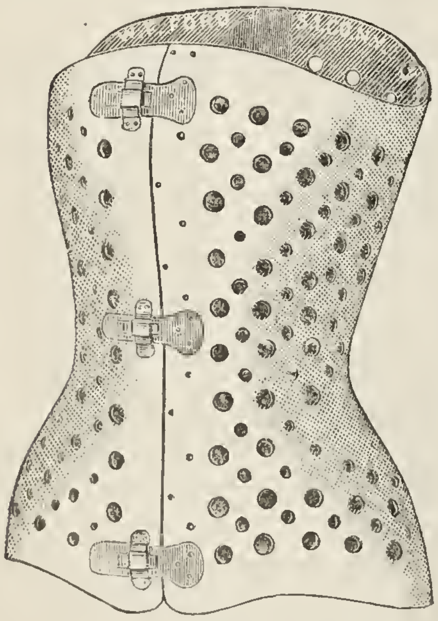

Fig. 2.

Professor Sayre has accomplished much by his constant and indefatigable hammering at the profession toward introducing the idea of partial suspension and fixation in Pott's disease of the spine; but the idea of partial suspension and fixation in Pott's disease of the spine carries us back almost to the traditions of medicine. Ambroise Paré, in 1579, used a fixation apparatus made from steel which is almost identical with the aluminum corset which I am using.

In 1696 von Nuck made a suspension apparatus which has been in almost constant use in Europe since that time. It is very similar to that used to-day bearing the name of the distinguished author of the paper of the evening. In 1700 Heister devised an antero-posterior support which in principle is the same as Taylor's brace used to day. It has been in use in England since that date. In 1754 Hauermann made a modification of von Nuck's suspension apparatus, which seems, however, to be more a change of material than principle. In 1764 Levacher devised the jury mast, which was attached to a corset made of steel and canvas, and was used precisely as the jury mast is used today. Portal, in 1772, slightly modified the jury mast, but attached it to a corset in the same manner. In 1825 De La Croix still further modified it by adding the chin piece. Heine, in 1832, still further modified Levacher's jury mast by adding a chin piece and attaching it to a steel hip-band corset. These jury-mast suspensions, taken together with the description of their use, are identical with those in use at the present time. About the only thing that this generation can claim in regard to spinal supporting is in the change of materials, using the principles laid down in the last century and the beginning of the present. They have been in constant use since then, and also the principles, as exemplified here to-night. I believe them to be correct. The profession owes a debt of gratitude to the author of the paper for having forced upon the American profession the idea of partial suspension and fixation in the treatment of Pott's disease of the spine.

I offer the aluminum corset not as a substitute for many of the braces and corsets now worn in the acute forms of Pott's disease and lateral curvature; I suggest it, rather, to take the place of such braces in cases requiring permanent bracing, or in individuals who are desirous of securing a support at any time which combines durability with lightness and comfort. So soon as a case of lateral curvature has been arrested, or the greatest amount of benefit has been derived from treatment, the aluminum corset will then be found a most agreeable permanent support. The aluminum corset has these qualities to recommend it to the patient:

1. Lightness.
2. Durability.
3. It is thin, and does not interfere with the form and clothing.

4. Being extensively perforated makes it the coolest and most agreeable of supports.

5. The patient can wear it during bathing.

An ordinary corset weighs from one to two pounds, depending upon the size. To prevent cracking and to protect it from perspiration, it is covered with a waterproof enamel which is applied by heat.

The steps of its construction: Make a plaster form of the body; send this form to the foundry and have a cast-iron anvil made; polish this, and then at a certain temperature the workmen will bend on to it two sheets of aluminum representing the two lateral halves. The frequent heating and hammering, together with the cylindrical shape, make the corset almost as strong as steel. The two halves are hinged in the back and closed with automatic clasps in front, which stop at any notch to accommodate itself to the body before and after eating. This corset completes my armamentarium in cases requiring spinal supports—viz.:

1. Plaster-of-Paris corsets for acute Pott's disease.
2. The wood corset for lateral curvature and cured or convalescent cases of Pott's disease.
3. The Beely corset for mild forms of lateral curvature, particularly in girls.
4. The aluminum corset for permanent bracing.
5. The celluloid corset which, in a way, takes the place of the aluminum.

I visited Dr. Waltuck, of Odessa, Russia, in 1888, and from him personally I learned the details of making the wood corset (Fig. 1) after several days of hard work. I found that Professor Lorenze, of Vienna, had been using the corset for some time, and was much pleased with it. At that time, however, many of their corsets proved to be inefficient on account of errors in their construction. We have used the corset constantly since that time, and, with the modifications which we have made, it is one of the most efficient, comfortable, and suitable braces that I know of.

It has been with the greatest difficulty that we have succeeded in getting the proper materials for constructing the corset, and even now it is cheaper and better to import the wood from Vienna. The spruce timber which grows there makes a better shaving than any timber that we have attempted to use which grows in America. It is tougher and works better with the glue.

An impression is made of the body with plaster bandages. This mold is filled with plaster of Paris, which makes a perfect cast of the body. The corset is now made over this cast. The cast is changed somewhat in shape to make the form even straighter than the body in the suspended position.

Corsets made according to the method followed at the time I observed the process were not so perfect as they should be. The slightest excess of glue, moistened by the perspiration of the body coming in contact with the shirt or the skin, was exceedingly disagreeable. The perforations in this corset weakened it and allowed the glue to exude during perspiration.

To obviate all this I had the corset perforated, as seen in Fig. 1, in which perforations eyelets were punched. A special machine facilitates the perforating and the punching of the eyelets. The lacings are stitched on as in Fig. 1. Trim the top and bottom with kid. The entire corset is covered inside and outside with two or three coats of shellac, which render it impervious to moisture, the eyelet holes ventilating it perfectly. The improvements which I have made in the corset consist in coating it with shellac on the inside and outside and putting eyelets in the eyelet holes, which add to the strength of the corset and ventilate it perfectly.

An ordinary corset for an adult weighs from a pound to a pound and a half. They are very durable, very comfortable to wear, and thus far I believe they are the best spinal braces yet devised.

I will add, by way of parenthesis, that the corsets, when completed, can be covered with silk or with stockinet, or they can be left in the linen finish.

THE
TREATMENT OF LARYNGEAL TUBERCULOSIS
BY THE
APPLICATION AND SUBMUCOUS INJECTION OF CREOSOTE.
DESCRIPTION OF AN AUTOMATIC LARYNGEAL SYRINGE FOR MAKING SUBMUCOUS INJECTIONS.*

By WALTER F. CHAPPELL, M.D., M.R.C.S.,
SURGEON TO THE THROAT AND NOSE DEPARTMENT OF THE MANHATTAN EYE AND EAR HOSPITAL.

The success attained in the treatment of tubercular deposits of joints, glands, and other tissues stimulates the belief that were it possible to subject tubercular disease of the larynx to the same effective methods, equally favorable results might be obtained. The history of the treatment of laryngeal tuberculosis has, however, been of a most discouraging character. Morell Mackenzie, speaking on this disease, said he considered it practically incurable. At present the general feeling is that a more favorable prognosis may be given, and by a judicious selection of treatment the distressing symptoms may be considerably relieved and in some cases a cure effected. The most satisfactory results in this direction have recently been claimed from the use of strong solutions of lactic acid and curetting the laryngeal mucous membrane. It has not been my good fortune to obtain the marked improvement from this line of treatment which has been reported by a few observers. I think it is not unlikely that further experience may prove that, in view of the possibility of a general reinfection following the use of the curette, it should be reserved for the ulcerative stages of tubercular laryngitis.

Creosote administered internally has probably proved more satisfactory than any other single drug for the treatment of pulmonary tuberculosis, its beneficial action being largely due to the presence of the creosote in the respiratory channels through which it is for the most part eliminated. The astringent, sedative, and antiseptic action of the creosote lessens cough and expectoration, and, according to some authorities, diminishes the number of tubercle bacilli. Although the improvement from creosote is conceded to be chiefly the result of its local action, treatment of tubercular disease of the larynx by the application of creosote has not received much attention, only a few observers having suggested it as an adjunct to internal administration. I have been unable to find any reports of creosote being given by submucous injection for its local action in laryngeal tuberculosis. I wish to bring before the Section this evening some patients who have received the creosote treatment by internal administration, topical application, and submucous injection. There is no pretense that the results from its use excel other methods of treatment, but I think an examination of the patients will lead us to agree that the combined uses of creosote give greater benefit than its internal administration alone, and, furthermore, that it compares favorably with any of the present methods of treatment.

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* Read before the Section in Laryngology of the New York Academy of Medicine, February 27, 1895.

Alcoholic and aqueous solutions of creosote are unsatisfactory, as they do not combine readily, nor do they diminish the irritating and pungent qualities of the creosote. Oily solutions are much to be preferred, as they greatly modify the unpleasant character of the creosote and, owing to their tenacious properties, cling to surfaces and spread a thin film over them which is not readily dislodged. By this means creosote may be kept in contact with mucous membranes for a considerable period and given ample opportunity to permeate the subjacent tissues to a variable extent. Castor oil is especially serviceable on account of its thick, viscid, and tenacious properties. It is also the most satisfactory solvent of creosote. The preparation of this solution requires considerable care, and a combination which may be generally employed consists of—

℞ Creosot. (beechwood), }
Olei. gaultheriæ, } ......āā ℨij;
Olei. hydrocarbon............ ℨj;
Olei. ricini.................. ℨiij. M.

The wintergreen and castor oil should first be mixed together, then the hydrocarbon oil added, and lastly the creosote. Sterilizing the solution by dry heat gives it a much clearer appearance. Mr. Hutchinson, of the drug department of the Manhattan Eye and Ear Hospital, has also made me a solution containing one drachm of creosote to the ounce; but he informs me that it does not combine in any other than these two proportions with these oils. This oily solution of creosote is clear, very fluid and non-irritating, of pleasant odor and taste, and may be used as a spray, or applied by the laryngeal applicator or as a submucous injection. Topical application alone may be relied on for the successful relief of the symptoms of primary tubercular deposits with infiltration and hypertrophy of the mucous membrane, provided the temperature is not high and the general condition is good. If, on the other hand, the evening temperature is high and the case seemingly progressing to active ulceration, a few submucous injections should be used as adjuncts to local treatment. The cough, laryngeal soreness, and moderate dysphagia of primary cases are quickly relieved by sprays of creosote, but resolution of their infiltrations and hypertrophies is not so rapid. In several of my patients the laryngeal distress was relieved after a few applications, but the infiltration continued for months.

Methods of applying Creosote Solutions Locally.—The interior of the larynx should be thoroughly cleansed before any treatment is undertaken. Applications may be made by means of down sprays, the laryngeal syringe, or by absorbent cotton on an applicator. The latter is not a favorite method with the writer, as it occasionally produces an undesirable amount of coughing. An eight- or a ten-per-cent. solution of cocaine saccharinate is carefully applied to the larynx, this preparation being preferable, in my opinion, to the muriate, as it does not produce so much gagging. After the cocaine has had time to produce moderate anæsthesia, a spray of creosote (two drachms to the ounce) is used. After the spray the pyriform sinuses may be filled with creosote solution, and also some of it allowed to drop into the trachea through the opening of a gum-elastic tip which is drawn over the cannula of the automatic syringe described later. This keeps the laryngeal surfaces bathed in creosote for a considerable period, and the patient should, if possible, be kept perfectly quiet and not allowed to talk or swallow for half an hour afterward. The stronger solution of creosote may be used every third or fourth day and the weaker ones every day or so, depending entirely on the amount of stimulation it produces. I have seen the laryngeal membrane become very red and cosiderably swollen from too frequent applications. In the ulcerative stages of laryngeal tuberculosis, sprays of a drachm of creosote to the ounce can be used daily with advantage; but if there is no ulcerative process a personal experience of each case must decide the frequency of the applications. A slight burning sensation follows the applications of creosote solutions, but it only lasts a few minutes. The disagreeable taste is pretty effectually covered by the wintergreen oil.

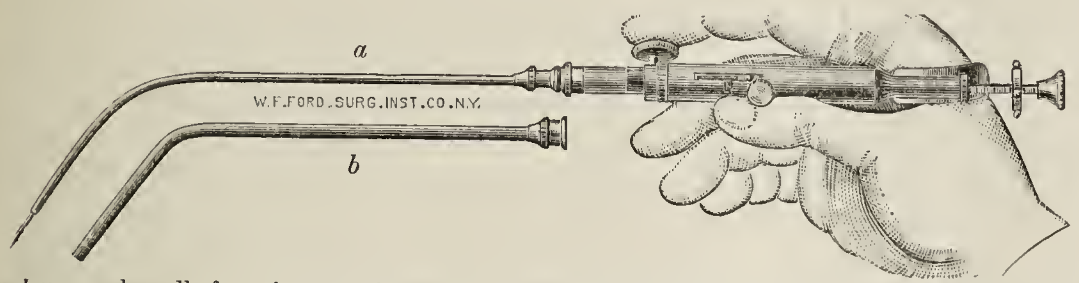
In tubercular laryngitis with ulcerations, both topical applications and submucous injection should be employed. They hasten the separation of sloughing tissue, stimulate healthy granulation, and at the same time arrest progressive ulceration. The injection should be as superficial as possible, as the primary tubercular deposit is immediately beneath the epithelial layer. Weak solutions of cocaine may be sufficient in some cases, but complete anæsthesia is usually necessary, and I have found twenty-per-cent. solutions to be the most satisfactory. They should be administered on an applicator, although it might be safe to employ the spray if the physician was well acquainted with his patient.

Method of making the Submucous Injection.—A long needle with a laryngeal curve can be used with any hypodermic syringe; but there are some drawbacks to this, as the movement of the hand in pushing down the piston is apt to make the patient gag, and conceals from view the point we wish to inject.

To obviate this I have had an automatic syringe made, as shown in the cut, which allows the operator to disengage the piston with his thumb and still keep the point of the syringe in view in the mirror.

The shank of the needle is a hollow tube about six inches long, which may be given suitable curves for laryngeal work. The needle is about half an inch in length, and corresponds to the large-sized hypodermic needle, with the opening close to the point.

The depth to which we desire to introduce the needle is regulated by a small piece of solid rubber ligature which is drawn over the needle and may be shortened or lengthened accordingly.



a, Laryngeal needle for submucous injection. *b*, Laryngeal cannula, with gum-elastic tip and cover, for injections into the larynx and trachea.

The rubber casing on the needle makes it easy and safe to employ pressure, and, owing to its suction, the rubber clings to the mucous membrane and prevents the creosote solution from welling up around the needle after the injection. The barrel of the syringe is partly glass and partly metal; the latter contains a spiral spring which is attached to the piston, and a longitudinal opening on the side of the barrel is notched to receive the catch of the spring. The piston goes the entire length of the syringe, and is graduated and furnished with a set screw to regulate the number of drops injected. The solution for injection may be warmed or not. The glass barrel should be filled and the piston catch pushed into the top notch of the metal barrel. The laryngeal needle, being already sterilized, is screwed on to the syringe and the piston dropped to the second notch of the barrel, thus filling the needle. After regulating the set screw for one drop (which is the amount usually employed), the syringe is ready for use. It should be passed into the larynx with the right hand, under the guidance of the laryngeal mirror held in the left. The point selected for the injection will of course depend on the situation of the tubercular deposit, and with a little experience any part of the larynx can be reached without much difficulty. When the point of the needle has punctured the mucous membrane, the catch of the spring is dislodged with the thumb, without changing the position of the hand, and the piston springs down as far as the set screw and makes the injection. If possible, the needle should be held in position for a few moments. Little pain or reaction follows the injection of oily solutions, but pure creosote causes a burning sensation and considerable soreness, which lasts a variable time. Much depends on the locality of the injection; the posterior surface of the arytænoids seems to be specially sensitive. There is little or no hæmorrhage after the needle is removed, and the following day the mucous membrane is more tense and possibly somewhat redder. This condition subsides in the course of a few days, leaving the tissues in a wrinkled condition, as though the mucous membrane was too large for the subjacent parts. This is most noticeable around the arytænoids. Careful judgment is required to determine how often the injections should be made, but as a rule it can be done once in five or six days. If ulceration is proceeding rapidly, one injection may be given daily until three or four have been administered. This number would usually include the amount of tissue involved and promote its more rapid resolution and stimulate granulation. After several injections, it is well to wait for a time and see if the circle of resolution will not spread from the point of injection to the neighboring tissues.

The experience obtained from the comparatively few cases I have seen is, of course, not sufficient to allow of definite rules being made for the position of injections. It would seem, however, that some remarks about injections in different locations might be made.

The ventricular bands usually require superficial and deep injections, the former to reach the deposits in the bands, and the latter the ventricles of the larynx. The interarytænoid space should be treated from below upward, otherwise it would be impossible to obtain a good view after the first injection. Very superficial puncture should be made in the mucous membrane covering the arytænoids, as it is an easy matter to start a perichondritis in this situation. A row of injections should first be placed around the base of the arytænoid cartilages and gradually approach their tips. Tubercular infiltration of the epiglottis renders it so thick and firm that it is capable of bearing considerable pressure and is readily subjected to this treatment. A single row of injections may be made around the free border of the epiglottis about half an inch apart. The lingual surface of the epiglottis is very accessible for injection, but the laryngeal surface is not so easily reached. If the anæsthesia is complete the epiglottis may in some cases be pulled forward sufficiently by the shank of the needle for the injections to be made. If this can not be effected, the needle may be pushed through the cartilage from its lingual surface.

A little experience will enable the operator to judge the thickness of the epiglottis, and the length of the needle we desire to use can be regulated by the rubber tubing, as already described. After the injections the larynx should be kept as clean as possible, and sprayed every day or so with the weaker solution of creosote.

In primary cases of laryngeal tuberculosis it is not necessary to keep the patient in bed; but in the ulcerative stage, with high temperature and general muscular weakness, it is better to have him remain in bed and under observation for twenty-four hours. In Case III an injection into the vocal cord produced considerable cough, and embarrassed the respiration to a slight degree for a few hours. Just why this happened I am unable to state, as many other injections in the cords of the same patient did not produce any similar results; neither has it happened in any other case.

The histories of the following patients demonstrate some of the benefits which may be expected from the combined creosote treatment, and I am pleased to be able to show five of the patients to the section this evening:

Case I.—F. H., aged twenty-three years, came to the hospital, July 23, 1894, complaining of difficult articulation owing to a stiff, painful sensation in the larynx and also considerable dysphagia. His family history was an unsatisfactory one, as his father died, aged forty-nine years, from pulmonary tuberculosis, and also three brothers, aged sixteen, twenty-eight, and thirty-one, respectively. The cause of their death was some throat affection the nature of which is uncertain, but from the histories was probably tuberculosis. His general condition was much impaired, and his appearance very anæmic. Afternoon temperature, 100·8° F.; pulse, 120. Considerable distress was experienced from severe night sweats and coughing. On examination, the upper parts of both lungs gave abundant evidence of tubercular infection in various stages of progress. The soft palate was very anæmic, and the laryngeal surface and tip of the epiglottis much thickened and rounded and very red in appearance. The coverings of the arytænoid cartilages were red, puffy, and of an œdematous, club-shaped appearance. Examination of sputa showed numerous tubercle bacilli.

Beechwood creosote was prescribed, and the larynx sprayed with an oily solution containing two drachms of creosote to the ounce. He visited the hospital three times a week, the internal dose of creosote being gradually increased and the spray continued. The laryngeal distress moderated considerably after the sixth application of creosote. Marked improvement was not apparent until the latter part of September, when the red and thickened appearance in the larynx diminished greatly and the dysphonia and dysphagia had about disappeared. The chest symptoms had not improved, and on the 21st of September the temperature was 103·2° F., and on the 25th it had fallen to 101·2°. Thirty-six drops of creosote had been taken daily for a period of two weeks past. On his next visit, October 2d, his appearance and general condition had much improved. Temperature, 100·2° F. This satisfactory improvement continued, and on October 19th he reported a gain in weight of four pounds in three weeks. Temperature was 99° F., and the cough, night sweats, and laryngeal symptoms had practically disappeared. The dose of creosote had reached sixty drops a day at this time, and the patient felt so well that he went to work.

He next visited the hospital November 2d, and reported a return of the night sweats and cough, accompanied by extreme prostration. He presented an ashy appearance and every evidence of being very ill. The mucous membrane of the left arytænoid cartilage was swollen and red, and he complained of some pain on the left side of the larynx. Temperature, 103·4° F. An injection of half a minim of pure creosote was made into the left arytænoid, which was followed by a burning sensation which lasted several hours. On the 7th of November the point of injection was still visible, but the infiltration present before the injection was made had about disappeared. The notes of November 12th shows the temperature to have been 100° F. General condition, appearance, and appetite much improved. Voice good. No dysphagia or dysphonia, and, with the exception of a little redness over the arytænoids, the larynx presented a satisfactory appearance. A few weeks later his wife called to say that her husband was very weak, and that their circumstances did not permit his having sufficient nourishment. He was admitted to the Presbyterian Hospital under the care of Dr. A. H. Smith, and during his stay of seven weeks gained ten pounds in weight. He has now been home some five weeks, and has visited me at the hospital every week, but receives no treatment for his throat. His pulmonary symptoms and general condition are, however, far from satisfactory.

Case II.—Mr. E. N. S., aged twenty-nine years, first came under my care in 1887 complaining of lumbar aching, and he subsequently developed two small lumbar abscesses, one in 1889 and a second in 1891. After the latter there was a slight curvature of the spine, which Dr. Gibney, who was called in consultation, said was due to tubercular disease of the vertebræ. In the summer of 1894 Mr. S. had a troublesome cough and night sweats. An examination revealed numerous fine, moist râles, with dullness over the left pulmonary apex. Temperature, 101° F. The sputa contained quantities of tubercle bacilli and some elastic tissue. Under creosote and general tonics the chest symptoms greatly improved. He again consulted me on the 17th of December, 1894, in consequence of hoarseness and a feeling of soreness in the larynx, with considerable pain in swallowing. Temperature was 99·4° F.; pulse, 100. His appearance was one of general depression and lassitude; cough constant and irritative in character, and moderate night sweats.

The soft palate and pharynx were anæmic. Epiglottis red and somewhat enlarged; the arytænoids large and their mucous membrane red and puffy. The interarytænoid space presented several hypertrophies. Considerable mucus adhered to the surfaces of the arytænoids, epiglottis, and around the base of the tongue and in the pyriform sinuses. A microscopic examination of the mucus showed plenty of tubercle bacilli. Creosote was prescribed for internal administration and the two-drachms-to-the-ounce solution of creosote sprayed into the larynx. A week later, after the third laryngeal application, the soreness and pain in swallowing were greatly diminished and the cough lessened. I did not see him again for two weeks, when he returned complaining of slight pain in swallowing.

An examination of the larynx showed an almost entire subsidence of the redness, infiltrations, and hypertrophies already described, with no apparent cause for the pain in swallowing. The creosote solution was again applied, and a spray given for home use of one drachm of creosote to the ounce with ten grains of menthol added. He is still under this treatment and, with the exception of the vocal cords being slightly pink, the larynx presents a nearly normal appearance and he does not complain of any laryngeal symptoms.

Case III.—E. D., a woman, aged thirty-seven years, came to the hospital April 23, 1894, complaining of hoarseness. Several members of her family had died of phthisis, but little could be obtained of their history. About a month before her visit to the hospital she had noticed her voice becoming slightly hoarse. It gradually progressed until she spoke in a low whisper. There was considerable soreness in the larynx, which was more or less continuous and accompanied by slight dysphagia. Temperature, 99·4° F. Moderate dullness in left pulmonary apex and some fine moist crepitations. Soft palate anæmic, epiglottis and arytænoid cartilages normal in appearance. Mucous membrane of interarytænoid space red and somewhat tumefied. Ventricular bands red and much thickened and partially overlapping the vocal cords. The latter were much thickened and presented a grayish granular appearance. An examination of the sputa showed a few tubercle bacilli.

The administration and application of creosote was commenced at once and continued until May 25th, when she reported no laryngeal pains or soreness and voice quite clear. The infiltrations of the ventricular bands and vocal cords had diminished considerably. During the summer months she visited the hospital four times and gave every evidence of gradual improvement. On the 3d of November she complained of a return of the laryngeal pain and hoarseness.

A laryngoscopical examination showed the right band and cord much thickened and about in the same condition as when

I first saw her. Left cord and ventricular band much improved.

Submucous injections of the oily solution of creosote were commenced and have been continued once a week to the present time. One of the injections into the right cord produced considerable difficulty in respiration, which lasted several hours. At present she has no cough or laryngeal soreness. The hoarseness continues, but is much improved. The infiltration of the ventricular bands is much less, and the gray thickened appearance of the posterior half of the vocal cords has nearly disappeared, especially on the left. The anterior parts of the cords are still considerably tumefied. The difference in condition of the anterior and posterior part of the cords is probably due to the difficulty experienced in making injections in the anterior part of the larynx.

Case IV.—M. J., aged thirty-two years, came under my care in September, 1894. He had had phthisis for two years, and the upper parts of both lungs were well infiltrated with tubercular deposit. Eight weeks prior to my visit he began to have pain in his throat and hoarseness. This condition gradually increased until the dysphonia and dysphagia became so great that he had taken to his bed, and had not swallowed anything for three days.

The epiglottis, arytænoids, ventricular bands, and, in fact, every part of the mucous lining of the larynx seemed to be infiltrated, and were in such an advanced stage of ulceration and necrosis that they were hardly recognizable.

Temperature, 103° F. Cough very troublesome and expectoration abundant. He was much emaciated, and his general condition so poor that any treatment seemed hopeless.

The larynx was cleared of secretions as much as possible and two injections of half a minim each of pure creosote made into the epiglottis. The oily solution was also thoroughly applied to the remaining portions of the larynx. The following day the necrosed portion of the epiglottis had separated, and the tension of the mucous membrane had considerably relaxed. This moderated the dysphagia and respiration became easier. Injections and applications of creosote and oil were continued daily for a week. A great deal of sloughing tissue was thrown off during the week, and the surfaces were covered for the most part with healthy granulations.

The following week the solution containing one drachm of creosote to the ounce was employed daily as a spray, and stimulated the granulating tissue so much that more soothing applications had to be substituted. Up to this time the dysphagia, although much better, was still considerable.

During the third week he swallowed with little pain, and was able to take plenty of nourishment. All the laryngeal symptoms had greatly abated, and an examination showed the remaining portion of the epiglottis to be much less thickened and the ulcerations healing. The general laryngeal thickening was greatly diminished, and the ulcerations over the arytænoids and ventricular bands were in various stages of cicatrization.

Some of the ulcers had entirely healed and gave the parts a wrinkled appearance.

This condition of comparative comfort continued for about two weeks, but the rapidly progressing pulmonary affection put a sudden end to the necessity for further laryngeal treatment.

Case V.—John B., aged twenty-seven, first visited the hospital December 3, 1894. He complained of having rapidly lost weight for three months past. About the 18th of November his throat began to be sore, and he had some slight dysphagia, which rapidly increased; it was almost impossible for him to swallow anything, owing to the severity of the pain. His articulation was also painful and his voice slightly hoarse. Cough constant and irritative in character, accompanied by a copious expectoration of thick, tenacious, and stringy mucus. Temperature, 102·4° F. Sputa loaded with tubercle bacilli. A pulmonary examination showed well-disseminated tubercular disease.

The tongue was red, epiglottis thick, and presented a cockscomb appearance, with small ulcerations covering its surface. The ventricular bands were thickened and the cords a light pink in color. The arytænoid cartilages were much enlarged and œdematous in appearance, and covered with small punctate ulcerations. A twenty-per-cent. solution of cocaine was applied to the larynx, and one drop of the two-drachms-to-the-ounce solution of creosote was injected into the margin of the epiglottis, also one drop into the right arytænoid. On the 5th a second injection was made into the epiglottis, and on the 7th one in the left arytænoid. On the latter date the epiglottis was found to be less thickened and paler in color. The dysphagia had slightly abated. After the last injection he was able to swallow all non-irritating liquids for an entire week with very slight pain; solids gave him a moderate amount of pain. The arytænoids had diminished in size, and many of the small ulcerations had disappeared. Cough and expectoration much less. This favorable condition of affairs continued for eight days, when the slight dysphagia reappeared. Temperature, 103° F. On the 21st of December the epiglottis, which had diminished in size and had had a very healthy appearance, began to look puffy, especially around the cushion; small grayish-looking spots appeared over its surface.

The following day, the upper part of the epiglottis seeming to be undergoing rapid necrosis, pure creosote was injected and partially relieved the dysphagia. From the 17th to the 24th of December the patient remained in the hospital, but his general condition became so poor that he was sent to his home in Brooklyn. Owing to the distance, he was unable to receive much further treatment. The upper two thirds of the epiglottis separated and the stump granulated over. The rest of the larynx was covered with granulative tissue in various stages of development. His cough was not very troublesome. The dysphagia was intermittent, sometimes causing great distress, and again he swallowed with comparative comfort. The loss of so much of the epiglottis allowed food to approach the glottis, and considerable care had to be exercised during eating or drinking. He died three weeks after his return home. The treatment while he was able to visit the hospital had been application of creosote in oily solution, and also its submucous injection and internal administration.

During the last two weeks cocaine was used at times to relieve the pain, and also several applications of iodoform, which afforded him great relief from pain for twenty-four hours. I regret to say that owing to the distance I only visited him once, and did not have an opportunity to continue the creosote treatment.

Case VI.—John D., aged twenty-seven years. Father died of phthisis. Has been hoarse off and on for over a year and has had several hæmorrhages. During the past month he has had considerable dysphonia, dysphagia, and an incessant cough at night, with profuse expectorations. Temperature, 99·4° F.; pulse, 88. A few tubercle bacilli present in the sputa examined. Slight dullness with some fine crepitation and râles were present at the apex of the right lung. Epiglottis normal, arytænoid cartilages very much enlarged and œdematous. Interarytænoid space filled with hypertrophied tissue covered with a grayish mucus and a few spots of ulceration. Ventricular bands much thickened and completely overlapped the cords. The latter were seen after applying cocaine, and presented a granular appearance. One drop of fifty-per-cent. solution of lactic acid was injected into the anterior surface of the arytænoid. A slight laryngeal spasm followed the injection, and the patient reported considerable burning on the right side of the throat for two days. Laryngoscopic examination showed considerable œdema around the point of injection. Three later injections of lactic acid were made, but, as there was little improvement, creosote was given internally, applied locally and by submucous injection from the latter part of December, and had been continued until the present time. After the fourth application the cough diminished considerably and the patient spoke with less effort and swallowed with little pain. At times the creosote seemed to be too stimulating and had to be stopped for a few days. At present his condition is as follows: Cough almost absent. No expectoration. Dysphonia and dysphagia disappeared. No special discomfort in the larynx; the thickness of the ventricular bands and arytænoid cartilages has diminished so that the cords are partially visible. Ulcerations in the interarytænoid space have healed, but the hypertrophies have not diminished. Arytænoid cartilages still much thickened.

Case VII.—J. S., aged forty-three years, came to the hospital January 21, 1895, complaining of hoarseness, cough, laryngeal soreness, and slight dysphonia, all of about two months' duration. Temperature, 99·4° F. The upper part of left lung was found partially infiltrated with tubercular deposit, and numerous bacilli were found in the sputa by Dr. Reyling, pathologist of the hospital. Laryngoscopic examination showed the epiglottis to be normal. Both arytænoids thickened, especially the left. The ventricular bands were much infiltrated, red, and completely covered the vocal cords. Interarytænoid space contained several papillary masses, and was covered with grayish-looking mucus. When the latter was removed two or three small superficial ulcerations were apparent. The patient has been constantly under treatment since his first visit and has received creosote internally and by application and submucous injection. As you will see, he has made marked improvement under this treatment. The cough and laryngeal soreness are arrested, the voice is better, and the thickening of the ventricular bands and arytænoids has diminished, so that the cords are visible. The papillary condition of the interarytænoid space is much lessened and the ulcerations have healed.

Several other histories might be furnished from my case book, but those just related seem sufficient to draw attention to the combined creosote treatment.

A correct diagnosis is extremely important in considering the results of any treatment of laryngeal tuberculosis. When a patient with pulmonary tuberculosis develops laryngeal symptoms it is not always an easy matter to determine their nature. Some authorities have held that the initial infiltrations and local hypertrophies so frequently present are entirely of an inflammatory character; but the subsequent history of these cases if neglected, or if they remain untreated, is alone pretty conclusive evidence that the deposits are tubercular in character. Much more might be said on the subject of diagnosis, but it is not within the scope of this paper, and I have only mentioned the question as several of my patients presented infiltrations and hypertrophies which entirely disappeared under treatment without ulceration. Considerable difference of opinion may also arise on the decision as to when a case of tubercular laryngitis is cured. Much will depend on whether we claim that the result is a permanent one or simply that as a result of treatment there is no further evidence of laryngeal disease. The future of a larynx which has been the seat of tubercular deposit must depend greatly upon the progress of the pulmonary affection. If the latter is arrested, as is not unusual, no further laryngeal trouble may be experienced; but if the pulmonary disease remains stationary or progresses, there is always danger of reinfection, and it is not unusual for the laryngeal symptoms to fluctuate with the pulmonary condition. From a laryngologist's standpoint, I think it is usually conceded that we may call it a cure when all symptoms and appearances of laryngeal disease subside, although they may return at some subsequent period.

The history of Case I is interesting and instructive, as, in spite of the fact that the pulmonary condition was rapidly becoming worse, the laryngeal symptoms continuously improved. The present condition of his larynx is also very encouraging, as there are no symptoms or appearance of tubercular infiltrations, although the pulmonary symptoms are still active and his temperature is 102° F.

The other cases of laryngeal tuberculosis without ulceration did well, the cough, laryngeal soreness, and dysphagia being quickly relieved, and have not returned.

In Case II the red and infiltrated condition of the mucous membrane of the larynx has completely subsided, and the infiltrations in the other cases are in various stages of resolution.

One of the two cases seen after the ulcerative process had begun was gradually relieved of his laryngeal distress, and at the time of his death the seat of ulceration was covered with granulating tissue; and had not the pulmonary affection carried him off so rapidly, considerable further laryngeal improvement might fairly have been expected.

The second case with ulceration was a most distressing one from the first, but the creosote injections promptly relieved the severe dysphagia, and for a week the patient swallowed with comfort. Our inability to carry on the creosote treatment at his home in Brooklyn resulted in partial relapse of the laryngeal affection, but one can not help feeling that much more relief would have been obtained had constant treatment been possible.

The benefits we may expect from the combined uses of creosote may be summed up as follows:

1. It relieves dysphagia, dysphonia, laryngeal soreness, and the cough in the primary stages of laryngeal tuberculosis.

2. Infiltrations and hypertrophies disappear in some cases after persistent treatment; the earlier the treatment is commenced, the more rapid are the results.

3. If the pulmonary disease is very active, early treatment may arrest the laryngeal affection or postpone and limit subsequent ulcerations.

4. Single tubercular ulcers may be healed if not too deep or too great in circumference.

5. In the ulcerative stages the cough and expectorations and laryngeal distress are greatly diminished, the separation of sloughing tissue is hastened, granulations stimulated, and the odor of the secretions much diminished.

The similarity of these results and benefits compared with those obtained from creosote administered to cases of pulmonary tuberculosis in the early stages is quite remarkable. I think it is not at all unlikely that further experience will prove that cases of laryngeal tuberculosis treated by the combined uses of creosote with suitable climatic and hygienic surroundings will give quite as good results as any other method of treatment. Creosote may be considered as occupying the same position to laryngeal tuberculosis as it already does to the pulmonary affection. Our present experience will not justify a positive statement regarding the curability of tubercular laryngitis in its advanced ulcerative stage. The opinion of the writer is that the pulmonary implication is so extensive and progressing so rapidly at this stage that an arrest and cure of the laryngeal disease by any measure must be very rare. Much, however, may be done for the dysphagia, dysphonia, cough, and excessive secretions, and it is chiefly for the relief of these symptoms that our efforts should be directed.

22 East Forty-second Street.

SOME REMARKS ON

EROSIONS AND ULCERS OF THE CORNEA AND THEIR TREATMENT.*

By CARL KOLLER, M.D.

It is not intended to give here a complete study of this interesting and important subject, but only to emphasize the general principles according to which corneal lesions have to be treated; besides, I shall mark out some points which personal experience has taught me to be of importance.

In dealing with corneal affections we must keep before our mind the peculiar anatomical and physiological attributes of the cornea: that it is a thin membrane without blood-vessels, but profusely furnished with nerve ramifications, covered on one side with epithelium continuous to that of a mucous membrane, on the other side with an endothelium; that it receives its nutrition from two different sources—in its upper layers by lymph currents fed from the conjunctival blood-vessels, and in the deeper strata from those tributary to the anterior ciliary blood-vessels. If we add that the high polish necessary for its function, protection from evaporation, is required and furnished by a constant irrigation with a salty fluid produced by the tear glands, the peculiar position of this structure is indicated. It is not necessary to dwell at length upon the great importance of maintaining the transparency and curvature of this precious little membrane in order to understand why every affection, even the smallest epithelial erosion, deserves our most earnest attention.

Every corneal erosion or ulcer, with the exceptions to be mentioned, demands the application of a well-fitting *bandage;* the popular eye patch or the dark eye glasses do not serve the purpose. The bandage ought to keep the lids closed without exerting pressure upon the eyeball. The closing of the lids prevents their rubbing on the ulcer with every movement, thus irritating it and causing pain. Furthermore, closing of the lids keeps dust out from the ulcer which is sure to gather there, being protected in the recesses from the cleansing action of the flooding tears. Anybody who has witnessed the immediate relief experienced by a patient with corneal ulcer or erosion after proper application of the bandage will be convinced that this is the right kind of treatment. In progressive ulcer with threatening perforation of the cornea the bandage serves yet another purpose. If the cornea at the place of the ulcer is thinned down to the point where a violent movement—coughing, sneezing, pressing for stool by a sudden increase of pressure—will rupture it, the aqueous humor will flow out with a rush, the iris will prolapse to larger extent, and by the sudden emptying of the chamber the lens may become dislocated. If, on the contrary, the eye is supported by a semi-elastic bandage the perforation will occur in a more easy way: the aqueous humor, instead of rushing out, will flow off gently; the iris, instead of prolapsing, will only lay itself before the little hole, so that the ultimate result will be only a small adhesion instead of an extension with all its possible consequences. Of course, bed-rest will greatly contribute to this more favorable development.

The bandage should be changed at least once a day. Corneal ulcers and erosions are mostly accompanied by some conjunctival irritation with discharge, and to remove the latter, change of the bandage and cleansing of the eye is necessary. Where the discharge is more copious it precludes the use of the bandage altogether, since the latter would be conducive to locking up of the secretion, a condition most unfavorable for the healing of corneal ulcers. The use of a bandage, therefore, is precluded in corneal ulcers arising in gonorrhœic ophthalmia, in trachoma, and even in the marginal ulcers occurring in chronic conjunctivitis of old cachectic people. It can be dispensed with in the lighter forms of ulcer from phlyctænular keratitis which are the rule in this country, whereas the extended, progressive, and deep, frequently perforating ulcers, very common among the poorer classes of large European cities, require different treatment.

Another measure of very great importance and fit for almost all cases of inflammatory trouble of the cornea is the use of *hot poultices.* The beneficial effect of such can not be too highly commended; it is well founded in theory and proved in practice. The corneal tissue, being devoid of blood-vessels, lacks the means of defense which other tissues possess against necrotizing influences in the increase of blood supply. A more liberal supply of lymph circulation will take the place that arterial congestion takes in the process of demarcation of necrosis in other tissues. On the other hand, in the healing stage of an ulcer it will promote the new forming of cicatricial tissue. To serve their purpose the poultices must not be made continuous; continual heat paralyzes the blood-vessels as continuous cold does. I generally recommend making them four times a day for an hour, and just as hot as patient can bear them, changing the compress about every minute or two. The compress must not be too thin to keep a sufficient amount of heat, and must cover a part of the forehead and cheek.

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* Read before the Manhattan Medical and Surgical Society, January 26, 1895.

If properly made, the eye looks congested and the skin of the forehead and check shows a deep red. The patients always feel very much relieved by these hot applications, and, if anything, have to be cautioned not to overdo their use. In the intervals the eye is bandaged.

The *use of atropine* may be advisable, but it has its strict indications, and the indiscriminate instillation of atropine in every kind of corneal ulcer must be condemned. Generally atropine is useful where there is great irritation and much congestion in the case of erosions or ulcers of a central location on the cornea. Strictly speaking, atropine has in ocular therapeutics one chief indication—that is, to dilate the pupil when iritis is present or threatening. Now, it happens, or rather lies in the nature of things, that this latter indication exists only in lesions of a central location on the cornea. Every corneal lesion is followed by a congestion of the corresponding part of the ciliary system of blood-vessels; so we see in a more peripheral location of the lesion only the corresponding sector of the ciliary system congested; but in central lesions the whole ciliary system all around the cornea is filled and gives rise to the well-known pericorneal injection. The same system of blood-vessels—the anterior ciliary arteries—are the chief blood supply of the iris, hence we see in every case of ciliary congestion the iris congested also and the pupil tending to become narrow, which latter is a purely mechanical phenomenon. In case of an infected ulcer the congestion of the iris just described may turn into real iritis. The view is borne out by the fact that we hardly ever see iritis follow a corneal ulcer peripherally located. If the atropine is useless except where it fills an indication, it may be even harmful, making the ciliary blood-vessels anæmic, thus lessening the lymph circulation and retarding the healing. This objection would not hold good against the general use of *eserine*, which a number of years ago was very popular in corneal lesions, and which would seem to serve similar ends as the hot applications—that is, to cause congestion of the ciliary system in the service of better nutrition. But the use of the eserine entails just the dangers which in many cases of corneal ulcer we have to combat—that is, complication with iritis, and, as far as I am aware, it is nowadays very sparingly used in corneal affections. There exists only one single indication for the use of eserine in corneal ulcers, and that is the case of a threatening perforation of an ulcer located at the corneal periphery. In such a case a contracted pupil may be very desirable to make the prolapse of the iris as small as possible if it does occur.

The *use of cocaine as an anodyne* in painful ulcers and erosions of the cornea is very common, but can not be justified either by practice or by theoretical considerations. The anæsthesia produced by cocaine instillation lasts a very short time—hardly ten minutes—and the reappearance of sensation is accompanied by the reappearance of pain, so that the instillation would have to be almost continuous to be efficient. But this would be the slightest objection. It can be shown that the use of cocaine in corneal affections is positively harmful. Cocaine is a general protoplasmic poison, as more recent biological researches have proved; it first stimulates the protoplasma and afterward paralyzes it, prolonged and repeated action causing finally mortification. It is very easy to demonstrate that repeated instillation of cocaine into an eye causes a general slight haziness and dotted erosions of the corneal epithelium. I noticed these phenomena in my first experiments with cocaine, and was at first inclined to ascribe them to dryness and evaporation, due to arrested secretion of tears and diminished winking of the lids brought on by the local anæsthesia. But a series of experiments undertaken on rabbits established beyond doubt that although dryness plays some part in the haziness and exfoliation of the epithelium, it is chiefly due to necrosis of the epithelium brought on by the direct action of cocaine. Comparison with the physiological effect of other substances with local anæsthetic properties, like erythrophlœine, leads to the same conclusion. A direct proof for this view is furnished by the experiments of Albertoni on the action of cocaine upon the vital functions and movements of ciliated epithelium, spermatozoids, and various protoplasmic cells of the lower forms of life. As in the treatment of corneal ulcers it is our task to fortify and enhance the vitality of the corneal tissue, we must abstain from the use of cocaine, which is liable to lower it.

As to our means of checking the progress of an infected corneal ulcer, besides the operation of paracentesis, in some cases the actual cautery is very much in favor, and justly, for since its introduction by Gayet many an eye has been saved that formerly was lost; with the use of cocaine the application of the cautery is entirely painless, and in fact its more extended use began with the introduction of cocaine as an anæsthetic. The actual cautery, however, has also its limitation, and it is by no means a panacea. One great objection is that to be efficient very much tissue must be destroyed—possibly more than when the demarcation would be natural. On the other hand, it is not a very rare occurrence that an ulcer, after cauterization has apparently stopped its progress, resumes its destructive stage again. The explanation for such is not difficult to find. The cautery, even if applied very liberally into apparently healthy tissue, will in many cases fall short of destroying every part of the infected area; besides, the source of infection is frequently in the conjunctival sac or in the lacrymal cyst, whence the most copious antiseptic irrigations can not eradicate it. The eschar produced by the cautery may be entirely sterile, but it forms a good soil for the germs of suppuration; and so we see in some cases the infection resume its course after a short stay and destroy what there is left of the cornea. The desideratum for progressive infected ulcer would be a remedy capable of diffusion into the corneal tissue and acting in an eclectic manner, destroying the germs of infection and sparing the tissue. To some degree tincture of iodine seems to act in this way. It is surprising how well the cornea stands the application of the strong tincture if properly executed, and how quickly sometimes progressive ulcers are brought to healing. One case has impressed itself very strongly on my mind. A man, sixty-nine years of age, unusually short of stature and rather decrepit, presented himself with one of those crescent-shaped ulcers on the inner margin of his right cornea which, before the introduction of the actual cautery, were considered incurable and which bear the very fitting name ulcus rodens, first given them by Mooren. If not stopped, such ulcers travel over the whole cornea, progressing with an undermined margin on the concave side of the crescent and cicatrizing on the convex side of it. They never lead to perforation, but never stop spontaneously until the whole cornea is converted into an opaque scar. To make them more dreaded still, they affect in most cases both eyes in succession. I applied the galvano-cautery, using besides other suitable measures; however, that stopped the ulcer only for a few days. The margin became infiltrated again, and the use of the cautery was repeated. Within four weeks I had resort to it four times, during which time the ulcer became larger, while the remaining part of healthy corneal tissue was reduced to a very small spot, almost surrounded entirely by the ulcer. Now a similar infiltration showed itself at the inside of the left cornea. Unwilling to bear the responsibility any longer alone, I proposed a consultation with another oculist. He also advised the use of the cautery. So I cauterized both eyes, being very little hopeful of the result, my patient being almost desperate. After a few days the infiltration of the margin showed itself again in both eyes. I decided not to repeat the use of the cautery and tried tincture of iodine, which I had used before in minor cases. I applied it once every day; within a week the ulcers were rapidly recovering and after two more weeks were completely healed. The patient has very good vision in both eyes, even in the first attacked, the healthy remainder of the upper strata of the cornea having been drawn back into its former position by cicatrization like a shrunken flap of the skin, gaining considerably in size.

A CASE OF AGORAPHOBIA.

By NEVILLE TAYLOR, M. A. Cantab.;
L. R. C. P., L. R. C. S. Edin.; L. S. A. Lond.; L. F. P. and S. Glasgow.

G. A., aged twenty-six years, consulted me about attacks of what he termed "nervousness." On inquiring their nature, he described them as "horrible feelings of fear with palpitation of the heart," occurring when about to cross a street or square, or when left alone in any large open space. When the first attack occurred he was in Austria, and about to set out for a walk over an extensive plain. This was about five years ago. He attributes their onset to the loss of a lifelong friend, a companion who had accompanied him everywhere.

He has always had good health, but has lately suffered from constipation and indigestion, and from the age of puberty he has been subject to recurrent attacks of acne. He was treated in Vienna for a "soft sore" three years ago; he has never had any secondary symptoms. He is very temperate, eats and sleeps well, and is a heavy consumer of cigarettes, smoking an ounce of Turkish tobacco a day. His father, a Russian, mother, a Pole, and two sisters are alive and well; no brothers. There is no insanity, hysteria, or any other neuroses in the family history.

The patient is a very intelligent and well-educated man, living the sedentary life of a clerk, a good linguist, and commanding a good salary. The heart and other viscera are healthy, the reflexes normal, and there is no evidence of any organic disease. The urine has a specific gravity of 1·020; no albumin, sugar, or oxalates, and amount normal.

The above-described case evidently belongs to that class of mental deviations described under the head of "imperative ideas," the *impulsions intellectuels* of the French alienists.

Ribot classes "fixed ideas" into three categories:

1. Simple fixed ideas of a purely intellectual kind, which usually are confined to the consciousness, or which have no outward expression save in insignificant acts.

2. Fixed ideas accompanied by emotions, such as terror, anxiety (agoraphobia, *folie de doute*, etc.).

3. Fixed ideas of the impulsive kind, irresistible tendencies, which express themselves in violent or criminal acts, as robbery, homicide, or suicide.

Verga describes cases of "claustrophobia," "acrophobia," and "astrophobia."

Westphal, who described this class in 1872, gives a typical case: "A traveler of sound constitution, perfectly sound mind, and presenting no disorder of the motor faculty, is suddenly seized with a feeling of alarm at the sight of an open space, as a public square of some little size. If he must cross one of the great squares of Berlin, he fancies the distance to be several miles and despairs of ever reaching the other side. This feeling grows less or disappears if he goes round the square, following the line of houses, or if he has some person with him, or if he supports himself on a walking cane."

Carpenter quotes an instance of what he calls "paralysis of the will," which seems to belong to the above category. If, "when walking the street, this individual came to a gap in the line of houses, his will became suddenly inoperative and he could not proceed. An unbuilt-on space was sure to stop him. Crossing the street was very difficult, and on going in and out of a door he was always arrested for some minutes."

The French term for this condition, *le peur des espaces*, is a very illustrative one.

Imperative ideas are more commonly met with in females during or after menstruation or in pregnancy, in the young, in the weak-minded, and in the convalescence after fevers.

Krafft-Ebing considers that the patient is seized with the idea that he can not cross the street or square, and that he then works himself into an extraordinarily nervous and fearful condition. He considers this to be an expression of an irritable weakness of the nervous centers, founded on a neurasthenic basis, constitutional or acquired. He considers prognosis unfavorable as regards the chance of complete recovery from this mental condition, especially if the patient becomes more and more unsociable and seclusive. Some have long intermissions, some end in mental torpor, while a few, based on acquired neurasthenia, may recover.

In my case the patient was haunted by the fear of insanity, suggested to him by some not very discreet practitioner he had consulted previously. While Charteris remarks that in some instances there is a history of hereditary insanity or epilepsy, Krafft-Ebing says that these cases never or seldom find their way into asylums. There is a very wide margin between the person who is conscious of the insistence and at the same time of the absurdity of an idea and the person who is conscious of the idea but not of the absurdity of it, and whose conduct is therefore influenced by it.

Westphal regards these attacks as allied to "epileptic vertigo."

According to Cordes, the primary cause is "a paresic exhaustion of the motor nervous system, of that portion of the brain which governs not only locomotion but muscular sensibility also." My patient was reassured about his fear of insanity, and was advised to take as much exercise as he could, but not to tire himself physically or mentally; to fight against the ideas at every opportunity, to attend to the bowels, and to moderate the use of tobacco. A sea voyage was also suggested.

He was seen again after a short time, but there is no particular change in his condition. However, he says that he feels more confident of overcoming the attacks altogether—a confidence in which I regret I do not share.

A CONTRIBUTION TO THE STUDY OF WATER-BORNE CHOLERA.*

By GEORGE HOMAN, M. D.,
HEALTH COMMISSIONER, ST. LOUIS.

In the burying ground of the St. Louis Quarantine Hospital stands a plain monument, erected, as the inscription upon it reads, in memory of one hundred and seventy-five non-commissioned officers and soldiers of the Fifty-sixth United States Colored Infantry who died of cholera in 1866.

It chanced that this monument and its meager inscription were brought to my notice at a time when I was somewhat occupied looking into the history of epidemic cholera, and the mortality recorded seemed so excessive that I was led to gather what further information I could in regard to it.

To this end I applied to the Surgeon General, United States Army, who in reply sent a copy of a War Department circular issued from the office of the Surgeon General, dated May 4, 1867, which was stated to contain all the data known respecting the cholera epidemic among the officers and soldiers of the regiment named in 1866.

This document contains no account of this outbreak by any medical officer who had personal knowledge concerning it, but includes a report by the commanding officer, dated August 18, 1866, from which, together with information obtained direct from the War Department and other sources, the following facts were taken:

Early in August, 1866, the regiment in question was on duty in Arkansas, five companies being stationed at Duvall's Bluff, and the remainder of the command, with regimental headquarters, was at Helena.

Being ordered to proceed to Omaha *via* St. Louis, the command, seven hundred and eight strong, assembled at Helena, and the five companies that had been at Duvall's Bluff embarked on board the steamer Continental on the evening of August 9th. The remainder followed on the Platte Valley the next morning.

The colonel states that the command had been unusually healthy during the summer, and the surgeon confirms this, saying that the regiment was in the best of health at the time of embarking.

No medical officer accompanied the command on this fateful journey, which has but one known parallel in American military-medical history, and perhaps few anywhere else.

Within a few hours after the boats swung out into the current of the Mississippi River mischief began, and by the time the Continental reached Cairo she had on board thirteen corpses and between fifty and sixty cases of cholera, all belonging to this regiment. More than fifty men of this command died on this boat before St. Louis was reached, the second boat not suffering so severely, but hardly a soldier in the entire regiment escaped an attack of the disease.

About a week after these troops left Helena the commander reported the deaths to that time among his men as one hundred and thirty-nine, but the end was not reached until the number recorded on the monument had perished, if, indeed, that number is correct, as it appears from the War Department records and information from other trustworthy sources, that the mortality in this body of men from this one cause was nearer one hundred and ninety than one hundred and seventy-five—a loss of more than one in every four in the command.

Of course, as thinking beings the question occurs to us, What caused this sudden and appalling outburst? And having duly considered the clouds and the moon and the malign influence of the stars without satisfactory result, we are compelled to look under our noses, so to speak, and study the immediate facts and circumstances connected with it.

At the time the regiment left Helena, sound and well, for this place, people were dying of cholera here at the rate of more than a hundred per day, the reported deaths from that disease in St. Louis for the week ending August 17th being seven hundred and fifty-four, and a very large proportion of the total deaths from this cause occurred in the territory between the river and Seventeenth Street and Cass and Chouteau Avenues. This territory was pretty well drained by sewers—the total length of public and district sewers here in 1866 being about fifty miles—and during the course of the epidemic the sewage thus poured into the river was heavily charged with the specific cholera organism.

The average stage of water in the river during that August was about twelve feet, and in view of all the facts elicited in regard to this occurrence, and of what is so well known now concerning water-borne cholera, there can remain no reasonable doubt that this body of men was poisoned by St. Louis sewage borne in the current of the river as far south as Helena, for the soldiers began to sicken and die within twelve hours after embarking, and no other source of water supply was accessible to them except the river.

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* Read before the Association of Alumni of St. Louis Medical College, April, 1894.

As already stated, this incident, in the extent of fatalities attending it, stands with but one known equal in American history, according to data furnished by the Surgeon General, and a very imperfect examination of reports of foreign occurrences of like nature shows but one instance where cholera mortality in a similar organization was exceeded, and this will be noted presently.

In an address on Water-borne Cholera, by the editor of the *British Medical Journal*, delivered in July, 1893, before the American Medical Association, evidence was heaped on evidence showing the direct, positive agency of polluted streams, used as sources of human water supply, in the causation and spread of Asiatic cholera.

In the abstract of sanitary and consular reports issued by the Marine-Hospital Service for the week ending November 4, 1892, there is a report from the American Consul at Odessa, dated at Tashkent, Turkestan, September 9th, same year, which contains most signal proof of this contention, and with your permission I will cite a small portion of it. He says:

> "At Samarcand three regiments of infantry were encamped side by side on a level plain close beside a stream of water. The colonel of one of the regiments took the most extraordinary pains to prevent his men from being attacked with the cholera, and he succeeded. In the first place, he caused every article in camp to be thoroughly cleansed with hot water and then disinfected. He compelled his men to bathe every day in hot water that had been boiled, and a guard was constantly maintained, whose duty it was to keep the soldiers from drinking the river water and to carry out the colonel's instructions. The result was that not a single case of cholera occurred in the regiment, while the other two regiments which were camped alongside lost over a hundred men from cholera. In these regiments the ordinary precautions were taken, but no such measures were adopted as I have mentioned above."

Again he says:

> "At Ashabad the cholera had almost disappeared early in August, and the event was celebrated with much rejoicing on the anniversary of the Emperor's name-day, which occurs in that month. The Governor-General gave a dinner, to which he invited a numerous company, and the various regiments were granted extra rations that they might rejoice on the occasion. The day, which began so auspiciously amid general rejoicing, was destined to have an ending which has no parallel in history. Of the numerous guests who attended that dinner, one half died within twenty-four hours. A military band of about fifty men who played during that fatal dinner lost forty of their number with cholera, and only ten of the men reached camp that night. One regiment lost half its men and nine officers ere the sun rose the following morning, and within forty-eight hours thirteen hundred people died with cholera. The cause of this outbreak was clearly traced to a small stream of water which supplied the town. Four days previous the authorities were informed that cholera had broken out at a small Turkoman village situated on the banks of this stream about four miles from Ashabad. The inhabitants of this village were ordered to move their *kriltkas* (tents) several miles back on the hills, which they did. On the day previous to the reappearance of the cholera at Ashabad a very heavy rainstorm occurred which washed the banks of the river and swept refuse and other matter from the abandoned village into the stream, and this matter was carried by the water into the city and distributed to all parts of the town by the numerous open canals through which the inhabitants were supplied with water. It was this contaminated water which caused the reappearance of the epidemic and the frightful mortality which followed. The population of Ashabad was not more than thirteen thousand, of which ten per cent. died within forty-eight hours."

Returning now to the Mississippi River, what evidence other than that of an inferential character can be brought forward in support of its impeachment as a death-dealing stream in 1866?

It happens that confirmation strong and proof convincing is afforded by the War Department document already cited in the account it contains of cholera among the troops at New Orleans the same year, the facts in brief being as follows:

On July 30th, on account of riotous disturbances in that city, the Eighty-first United States Colored Infantry was stationed at the foot of Canal Street and remained there ten days, during a part of which time the men drank water from the river, and many cases of cholera occurred until pure water was supplied, which had a most marked beneficial result, according to the surgeon's report.

The supply of distilled and rain water for the use of the One Hundred and Sixteenth United States Colored Infantry was scant for a day or two and some of the men used river water. Soon two cases of cholera appeared. Pure water was supplied and there were no more cases in the regiment.

Again, the Ninth United States Colored Cavalry and Thirty-ninth United States Infantry were supplied, but not sufficiently, with distilled water until the cisterns at their camp could be repaired and filled. At first the distilled water, sent hot in casks, could not become cool before it was needed. The men preferred to drink the river water because it was cold, and did so against orders and repeated warning, accepting the risk of disease rather than wait for the water to become cool and aerated. Case after case of cholera followed. Critical inspection failed to develop any other probable cause except the use of river water, and recommendation was made to move the regiments away from the river far enough to prevent the men obtaining it. To avoid moving, the cavalry put on a strong guard to keep the men from the river, and cistern water was supplied them. Cholera from that time ceased in these regiments.

In view of the foregoing facts, much interest attaches to the question as to the origin of the cholera virulence of the river water at New Orleans, for at that time there was no sewage flow from that city into the river in front of it, nor was there any sewerage system worthy the name in any town or city above it nearer than St. Louis.

No cholera was known to exist at Helena while the Fifty-sixth Regiment was there, although before its departure the surgeon informs me that this disease was reported as being present in St. Louis and New Orleans.

Up to the time of embarking, the command in question drew its water supply from wells and springs which were kept free from surface contamination.

Upon a full consideration of the facts and circumstances connected with this epidemic there seems to be no escape from the conclusion that the Mississippi River was poisoned from here to the Gulf of Mexico by cholera-infected sewage in the summer and fall of 1866; that the source of that sewage was St. Louis; that a flow of over one thousand miles in open channel failed to free those waters of perilous risk to human health and life, and that this fact should lay forever in its grave the worn-out notion that water can purify itself of such living elements by merely flowing any distance whatsoever—a notion or superstition held by many who should know better, and dating from a time when no living thing much less in size than a tadpole was recognized as existing in water.

In the extracts from correspondence accompanying this paper mention is made of the eating of raw sugar by the soldiers while *en route* to St. Louis as being a possible or actual cause of the frightful mortality experienced, especially by the detachment on board the Continental.

That sugar alone could produce such a result is impossible, else cholera epidemics would occur daily; but recent investigations serve to throw much light on the rôle sugar may have played in this instance. The responsibility of the common house fly as the active medium in the infection of food substances, and causation of otherwise mysterious outbreaks of cholera, seems well established; and the infection at New Orleans of the sugar carried by the Continental, or while *en route*, may be explained in this way, and sufficiently shows the relation of cause and sequence when the partiality of flies for alvine dejecta and saccharine substances is borne in mind.

I beg to add, as tending to throw additional light on the subject-matter of this paper, some extracts from the correspondence of those who were, more or less, actors in this tragical occurrence. They are as follows:

From a letter from Daniel A. LaForce, M. D., of Ottumwa, Iowa, late Surgeon Fifty-sixth United States Colored Infantry, dated January 26, 1894:

"I was in charge of the United States General Hospital at Helena, Ark., in July, 1866, when the Fifty-sixth United States Colored Infantry received orders to go to Fort Leavenworth, Kansas. I had orders to turn over the hospital supplies and join the regiment at Fort Leavenworth.

"There had been very little sickness in the regiment during the spring and summer. The regiment was camped near the hospital, and the sick reported to me at the general hospital for treatment. The assistant surgeon was on duty at Duvall's Bluff with two companies of the same regiment.

"There was no medical officer to accompany the regiment, as it was necessary for me to stay long enough to turn over the hospital and supplies. The regiment was in good health at the time of leaving. I followed in about three days and found it in quarantine near St. Louis. Surgeon Swift, of the regular army, was in charge of the camp, and I relieved him. There were two young city physicians who volunteered to assist in caring for the cholera patients. They were noble, whole-souled, and untiring in their efforts to aid us in the care and treatment of the cholera patients. Their names were Outten and Quarles.

"As stated, the regiment was in the best of health when they embarked on the Continental or Platte Valley. We knew of no cholera on the boats until it broke out among the troops about twelve hours after leaving Helena, and by the time they reached Memphis there were about forty cases reported. There was no medical officer with the regiment except a hospital steward, so Colonel Bentzoni, commanding, employed a physician to accompany them to St. Louis.

"It was currently reported and believed that the eating of the raw sugar by the troops was the cause of the epidemic. Four or five hundred of the regiment had the cholera and a hundred and seventy-five died at quarantine, to whom a monument was erected by the surviving members. The scourge abated by the latter part of August, and the regiment was mustered out of service September 15, 1866."

From same, under date of February 2, 1894:

"In answer to your inquiry as to the source of water used by the Fifty-sixth Regiment, United States Colored Infantry, at Helena and Duvall's Bluff, would say that I did not accompany the detachment to Duvall's Bluff, consequently am not able to state the source of water supply at that place.

"At Helena the water was from springs and wells. They were kept clean and free from surface water. It was my opinion that the water was pure.

"The regiment was encamped mostly in log barracks erected by the soldiers on the east side of a sloping hill with sandy loam. They used the water from the same source for about two years. Quite a good many of the soldiers died the first year of malarial fever and small-pox. In the early part of the cholera epidemic nearly every one that was attacked died in a few hours. Later on the disease became less fatal. I remember that nearly every soldier in the ranks suffered with an attack more or less virulent. A hard-fought battle would have been a picnic to going through the ordeal of the scourge. I think fear caused many of the cases to be fatal among the negroes. I saw some cases die in two hours from the appearance of the first symptoms. They seemed to be in a stage of collapse almost from the start. Several officers had the cholera, but only one died, and that was Lieutenant Joe Brooks. He had so far recovered as to be able to be sent home to his father, Rev. Joe Brooks, of St. Louis.

"Cholera had been reported at New Orleans and some other points on the lower Mississippi and at St. Louis shortly before the regiment vacated Helena; but up to that time there had been no case reported at Helena."

From W. B. Outten, M. D., St. Louis, under date of January 26, 1894:

"In August, 1866, Colonel Labadie, then Department Purveyor of the United States Army at this point, solicited Dr. R. S. Anderson and myself to attend to a negro regiment which was then in transit, and among its numbers cholera had already appeared. The St. Louis Quarantine Station on the Iron Mountain Road, at its present position, protected the Mississippi River and prevented any arrivals who were foolish enough to come up by the river at that time, and there were not any who did come except in this instance a portion of the United States Army returning from the South.

"Accordingly, I signed a contract and went immediately down to quarantine, arriving there in the evening. The negroes had died so rapidly that they were not encoffined, but enshrouded in their blankets and buried at the old quarantine graveyard. I continued my work there for two days and two nights without any assistance; neither Dr. LaForce nor his assistant surgeon were on hand. On the third day of my arrival I managed to induce Dr. R. A. Quarles, who is now a resident of this city, to come down and help me. He and I remained with the regiment until the cholera ceased. If I remember correctly, out of a regiment of some seven hundred, in the neighborhood of some six hundred or more were affected with the disease, and in the neighborhood of two hundred died from this cause.

"There is only one element of success in connection with this trouble, and that is in the direction of prevention, and which was indulged in in the epidemic at quarantine. We had sick call night and morning, and, instead of giving medicine to the collapsed men, we attended to the furred and coated tongue and incipient diarrhœa—that is, kept the well from being sick and thus robbed cholera of its material, and at the end of ten days no new case of cholera presented itself."

From Major Charles Bentzoni, United States Army, late Colonel Commanding Fifty-sixth United States Colored Infantry, dated February 27, 1894:

"The troops on the Continental had been stationed at Duvall's Bluff on the White River. I think they came down the river on another boat and were transferred to the Continental. Both the Continental and the Platte Valley came from New Orleans, where cholera had been epidemic for some time. There were rumors that cases had occurred on one or both the vessels, but I had neither time nor opportunity to make inquiry. The troops on the Platte Valley, on which boat I was, had been stationed at Helena. Aside from malarial affections, there was no sickness in the command at the time of embarkation. It is true that officers at the time laid much stress on the fact that men on the Continental had been eating raw sugar in great quantities; but there was no such cause on the Platte Valley. As to the probability of being infected by the water, I call your attention to the fact that the Continental, after only a ten hours run with the troops aboard, left the first case dying on the wharf at Memphis; and on the Platte Valley I buried the first case about fifty miles above Memphis. This is a very great distance from the supposed source of infection. In short, I believe both boats were infected at New Orleans.

"I engaged a Dr. Perkins at Cairo, and he had charge of the sick on the Platte Valley until we reached St. Louis."

From James Sykes, M. D., of Beverly, Ill., late Assistant Surgeon, Fifty-sixth United States Colored Infantry, dated April 2, 1894:

"About the 1st of April, 1866, the second battalion of the regiment, consisting of Companies B, D, E, G, and K, were ordered to Duvall's Bluff, on the White River, in Arkansas, with myself as medical officer in charge. The command enjoyed excellent health till we were ordered to St. Louis, Mo., about the 1st of August, when the battalion rejoined the regimental headquarters at Helena, Ark. We had a few sick at that time—I think about eight or ten—but there was nothing peculiar about their sickness, I being left with them. Two weeks later they had all recovered sufficiently to travel, and I went by boat to Helena with them. A few days before we left Duvall's Bluff—say, about the 8th or 10th of August—there occurred two or three cases among the citizens that were strongly suspected to be cholera, and, from my subsequent experience with cholera, I am now satisfied they were genuine Asiatic cholera. I think these cases were still sick when we left, as I have no recollection how they ended. At that time cholera was prevailing along the river towns and on the boats. The troops at Duvall's Bluff used river water, which at that time was very clear, but hot. On our arrival at Helena we found the regiment gone to St. Louis, leaving on two boats. There had been a few cases of cholera at Helena when we arrived, and I think some of them occurred before the troops left. So I think it entirely probable that they had the microbes with them when they went on board From the officers with the troops I learned at the time that most of the cases occurred on one boat. I think Surgeon La Force was with one boat, but I forget which one. They informed me that several cases occurred before the most infected boat reached Cairo, where the colonel took on two citizen doctors.

"I was informed at the time that the most infected boat had a quantity of raw sugar going to the refineries, and that the soldiers, being on the boiler deck, burst open several hogsheads of it, and ate as only colored men can. My own theory is that the soldiers either took the cholera microbes from Helena or else they were already on the boat, and then, gorging themselves with raw sugar, allowed the pestilence to get in its deadly work. The fact that but very few officers took the disease at all, and they in a light form, would seem to indicate that it was something in the diet, rather than the water, as all used river water alike. But one officer died (Lieutenant Brooks), and he from a relapse occurring after he had recovered so far as to take a leave of absence to visit his family living in St. Louis. After the troops arrived at St. Louis they were removed to quarantine, and the cholera became general among all the companies. The above is from memory, and while I doubtless have forgotten some facts, the narrative is substantially correct."

From George M. Sternberg, Surgeon General, United States Army, under date of March 7, 1894:

"In connection with your reference to mortality from cholera in your letter of January 26, 1894, I desire to invite your attention to an extract from a report of Major-General Macomb, given on page 81 of Forry's *Medical Statistics, United States Army*, Washington, 1840, as follows:

"'Of the six companies of artillery which left Fort Monroe, five companies arrived at Chicago in the short space of eighteen days. . . . The loss by cholera in that detachment alone was equal to one out of every three men.'"

NOTE.—Since the foregoing was written the subjoined statement, under date January 17, 1895, has been received from Captain J. M. Thomas, who commanded the detachment on board the Continental, and which presents such a vivid picture of pestilential ravages—which, it is hoped, could never again occur in this country—that it is given nearly in full. The account is as follows:

"Replying to your request for information in detail concerning the cholera epidemic of 1866, and especially as it affected the Fifty-sixth United States Colored Infantry, will say: 1. The health of the detachment at Duvall's Bluff during our stay there was very good. 2. We left there about the last of July to rejoin our regiment at Helena, Ark.; the name of the boat carrying us I do not now remember, but I considered its sanitary condition good. 3. When we embarked for Omaha, Neb., on the steamer Continental, August 10th, no cholera was known to exist along the Mississippi River at any point either above or below Helena. 4. The health of the passengers on the Continental was good and the sanitary condition excellent. 5. She was from New Orleans *en route* to St. Louis, and carried about thirty passengers.

"I will state that, on the 9th day of August, while at Helena, one of my men was taken violently ill and in a few hours died. The doctor certified his death to be caused by 'congestive chill,' but I must say the symptoms were identical with many others who afterward died and were called cholera deaths.

"We left Helena on the 10th of August with orders to report to the commanding officer at Omaha, Neb. At that time the health of the command was good. We had not gone far when an officer of one of the companies reported to me that one of his men was very sick and, he feared, was going to die. I directed that he should be sent to the military hospital at Memphis, Tenn., when we reached that point, which was done. I afterward learned that the soldier died. Next day, the 11th, many more were taken sick, and we began to realize that we had cholera with us in all its violence. The crew and passengers became panic-stricken, and for a time it seemed as if abject terror had taken possession of all on board; men prayed who never prayed before, pleading with their Maker to stay the pestilence. On our arrival at Cairo, Ill., three of our men were dead, and fully one hundred very sick. We called on the Mayor of that city to bury them, but he refused, saying, 'You have cholera on board your boat, and I want you to leave this city at once,' and slammed the door shut. Having no medicines or doctor on board, I tried to hire a physician to go with us to St. Louis, but none could be induced to take their chances on a floating pesthouse, as our vessel was at that time. We went to a drug store and purchased forty dollars' worth of cholera mixture, and returned to the boat and found that four others had died while we were away.

"After leaving Cairo I directed Captain O. R. Sensibaugh, my next officer, to land at some convenient point as soon as possible and bury the dead, retiring to my stateroom for much-needed rest, not having slept one moment since leaving Helena.

"About eight o'clock in the morning Captain Sensibaugh came to me and informed me that my orders had been obeyed, and that he had buried twenty-one men and one woman (a soldier's wife).

"About 5 P. M. we made a landing on a small island thickly timbered and buried twenty-one men and one woman, also a soldier's wife. On the morning of the 13th, as we neared Jefferson Barracks, we landed on the Missouri side for the purpose of burying ten men who had died during the night. One of the men, who assisted in carrying off the first body, on returning to the boat was taken violently sick, falling full length as if struck with a hand-spike, and was dead before the others were buried, and was carried off and laid beside them, increasing the number to eleven, making a total of fifty-three men belonging to our command and two women, soldiers' wives, buried between Cairo and St. Louis, all in the space of thirty hours.

"Arriving at Jefferson Barracks, I went to the telegraph office for a reply to my dispatch previously sent to General Sherman, but found no answer; therefore we were compelled to proceed to St. Louis. Upon our arrival at the wharf I directed Captain Washington to anchor in midstream while I reported to General Sherman for orders. I immediately repaired to headquarters, only to learn that he was in Nebraska, and my message had been forwarded, but no reply had been received, and no one at the general's headquarters would assume the responsibility of sending us to quarantine, as requested. We were thus compelled to wait until about 4 P. M. before the order came, as follows:

"'If Captain Thomas, commanding detachment Fifth-sixth United States Colored Infantry, has cholera on board, send them to quarantine. SHERMAN, *General*.'

"Colonel Swift, United States Medical Department, had anticipated the order and was already at quarantine, having proceeded by rail, and had hospital tents up and ready to receive our sick as soon as we should land. He was accompanied by Dr. W. B. Outten (now chief surgeon, Missouri Pacific Railroad), and Dr. Quarles, of your city. After leaving General Sherman's headquarters, accompanied by Mayor J. S. Thomas and Captain (afterward Mayor) Joseph Brown, we were conveyed out to the steamer Continental with its awful cargo of human freight. When we landed at quarantine twenty-eight dead soldiers were carried off the boat, besides more than two hundred sick ones.

"Colonel B. L. E. Bonneville, United States Army, commanding at Jefferson Barracks, kindly sent a detail each day to bury our dead, for we had not men enough to attend to it. Our total loss was one hundred and eighty-four enlisted men and one officer—First Lieutenant Joseph Brooks, Jr.

"Colonel Bentzoni, with the remainder of the regiment, came in on the next boat and camped near us, and a day or two later we were joined by Major Wells and Dr. Sykes, our assistant surgeon, both of whom had been absent on leave.

"It was said our sickness was caused by eating unrefined sugar, with which our boat was loaded; but I do not believe our ills could be laid to that charge, for thousands died in St. Louis and other places all over this country who never tasted raw sugar, and, besides, a very few of the men had eaten of the sugar at all.

"The commissioned officers suffered very little inconvenience from the effects of the epidemic; most of us lived, as near as possible, the same as before. I had it quite severely, but attributed it to my having lost so much rest while attending to the needs of others, my sickness occurring several days after reaching quarantine.

"I had then served in the volunteer service of the United States for more than five years, had endured the usual hardships of camp life, and am free to say that I would gladly have served it all over again rather than pass through those scenes again, and witness the horrors of another cholera epidemic such as I did in the year of our Lord 1866."

THE THERAPEUTICAL EFFECTS OF BETA-NAPHTHOL BISMUTH.

By HUGO ENGEL, A. M., M. D.,
FELLOW OF THE AMERICAN ACADEMY OF MEDICINE;
LATE PROFESSOR OF NERVOUS DISEASES AND CLINICAL MEDICINE
IN PHILADELPHIA, ETC.

SHOULD each decade of the nineteenth century be given a name to represent the progress made and the activity displayed during it in the various branches of medicine, we might bestow upon the period of the last ten years the appellation of the epoch of the discovery of new remedies. It, indeed, is not easy to keep step with the rapid march of advancement in therapeutics. And it is not only the great number of new drugs—though so great as to cause our admiration of the wonderful fertility of the human brain in the invention alone of names for them—but it is also their valuable character, the definite results following their employment, that has made this decade so remarkable. That some chaff is mixed up with the wheat scarcely deserves mention; wherever truth and real worth achieve victories, humbug is bound to claim its portion; but when it appropriates to itself the lion's share, it can do so only by proving the correctness of the adage: *Mundus vult decipi, ergo decipiatur*. Fortunately, since a higher standard of medical education has extended the grasp of the intellect, that proverb to-day finds but little application to physicians, and the harvest of proprietary remedies, whose sole virtue (?) rests in the skill with which the owners have succeeded in giving a new name to well-known drugs, has been but limited.

Among the many valuable achievements of the modern manufacturing chemist one class has not yet attracted in our country the attention it deserves—viz., the combinations of phenol, cresol, and naphthol with bismuth. Of these I have thoroughly tested but one—beta-naphthol bismuth—and so reliable have I found this drug, and so superior in intestinal complaints to all the various bismuth salts previously known, that I determined to publish my observations for the benefit of the medical profession as well as for that of suffering humanity.

The internal application of the phenols has thus far been but a very limited one. In their free state they are exceedingly poisonous, their caustic action is deleterious to the mucous membranes of the alimentary canal, and they possess, besides, a very disagreeable odor and are repugnant to the taste. In their combination with bismuth they seem mutually to neutralize these obnoxious properties, and when thus introduced into the human system they again form the various phenols with all their therapeutical effects, the oxide of bismuth also being liberated and fixing the toxic albumins in the intestines.

From the reports of experiments made in Professor Nencki's Laboratory at the St. Petersburg Imperial Institute for Experimental Medicine,* we learn that beta-naphthol bismuth, when introduced into the stomach, is decomposed into naphthol and bismuth to some extent; some passes on into the intestines, where the conditions are also favorable to its complete decomposition from the acid reaction of its contents and the presence of the pancreatic juice. Naphthol is but partially eliminated with the urine; the residue passes through the whole alimentary canal, and is finally excreted by the fæces. Bismuth, on the other hand, is totally excreted with the fæces as sulphide (in man; in the dog not, because of the relatively much greater amount of muriatic acid in that quadruped, causing the formation of some soluble chloride, but most of it undergoing the same changes as in man). In no single case were any toxic symptoms observed, though administered in daily doses of seventy-five grains (one hundred and fifty grains to dogs).

Another observation showed that all the combinations of the phenols with bismuth undoubtedly arrested the development of bacteria—an important fact which, though explained by the separation occurring in the intestinal tract, yet by itself explains the remarkable effect of these remedies in certain bowel complaints.

Professor Hueppe † also found beta-naphthol bismuth a most powerful intestinal antiseptic, and recommends it as a specific in Asiatic cholera. He treated a number of cases with it in one of the Hamburg hospitals. Von Nencki ‡ noticed that the drug was well borne by patients even when continued a long while. Other Russian physicians # administered it in Baku in daily doses of fifteen to thirty grains in choleraic diarrhœa and allied diseases, and, while recovery occurred in almost all cases, injurious effects were not noticed in any.

Wilcox * read last December a paper on bismuth in general, in which he speaks highly of the combinations in question, and finds the beta-naphthol bismuth especially indicated in all fermentative bowel complaints.

By Jasenski † it has been used with success in chronic intestinal catarrh and in cancer of the stomach. The eructations and the vomiting were completely relieved in the latter disease.

I will now report a few cases from my own practice to illustrate the remarkable effect of the preparation:

A. G., aged twenty years, had been a robust, healthy young man up to July, 1894, when, while at the seashore, he was seized with severe abdominal pain in the left hypochondriac region. The pain returned from one and a half to two hours after every meal, and was at first felt only for a few minutes. Gradually, however, this time extended; the pain lasted an hour and more, until it finally never ceased completely. Simultaneously with this exacerbation in the pain the general health deteriorated; the appetite vanished, severe thirst took its place, and A. G. lost decidedly in weight. This train of symptoms went on unchecked until, early in October, vomiting and diarrhœa made their appearance, from which the patient had suffered but a few days when high fever set in, forcing him to seek his bed. Here he remained confined for over two weeks, during which his temperature, without any regularity, varied from 102° to 104·5° F. The discharges were of a fœtid odor; the vomited matter, either half-digested food or acid mucus. By the end of the fortnight the fever left him, and he was once more able to be about; but the vomiting, diarrhœa, anorexia and pain, and the loss in weight continued unabated. It was in this state that I first saw him on November 1, 1894.

I had known the patient previously, and was not a little surprised at the fearful change in his looks. He made the impression of a consumptive in the last stages, and even the red hectic spots, almost pathognomonic of that malady, were visible on his cheeks. He could scarcely keep himself in the upright position, so weak was he. The physicians had pronounced his case first one of walking typhoid and later one of acute malaria. There had been no bleeding from the nose, no general malaise preceding the first attack of colicky pain—which had set in abruptly in the midst of apparent health two hours after a meal—and the temperature record also disproved the presence of either fever. Upon physical examination, I could detect no organic disease except an enlargement of the spleen. There were no rose-colored spots; the abdomen was flat and sunken; there were no tympanites, no gurgling sound, and no tenderness whatever in the right iliac fossa. Neither had dysentery instigated the complaint; the patient never had any bloody discharge from the bowels, no feeling of a heavy weight in the rectum, and intestinal tuberculosis could also be excluded. Nowhere was there felt any pain on pressure, but the pain seemed to radiate from the middle of the descending colon, and to extend thence a little over to the other side, not much beyond the umbilicus. It seemed an ache with colicky exacerbations. The tongue was covered with a thick yellowish fur and evinced a tendency to dryness; no sordes. Sleep very restless. Pains and aches all

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* Reports by Dr. M. F. A. Jasenski, *Arch. des sci. biol.*, vol. ii, No. 2.

† *Berl. klin. Woch.*, 1893, No. 7.

‡ *Wratsch*, 1893, No. 1.

# Schubenke, Blackstein, and Petkewitsch, *Wratsch*, 1892, Nos. 41 and 51.

* Reynold W. Wilcox, The Preparations of Bismuth. Read before the New York Clinical Society, December 15, 1894.

† *Loc. cit.*

over the body, reminding one almost of those accompanying trichinosis. The patient was an Israelite. Nothing else could be elicited except the general debility, which seemed to have seized upon every tissue. Urine slightly albuminous; no casts; no sugar; otherwise normal; quantity also normal and no disturbance in micturition. Temperature, 100·4° F.; pulse, 126.

The discharges were dark brown, highly offensive, fluid, frothy, and from six to fifteen in number daily. I took a small quantity with me in a bottle and injected some of it into the abdominal cavity of a rabbit. The animal seemed restless for about ten minutes, then appeared as if under the influence of some narcotic, and in about an hour after the injection it had four fluid stools in rapid succession, when it was suddenly seized with spasms and died. Except a congested appearance all over the small intestines, no lesion was visible at the autopsy. The bacteriological investigation showed the presence of five different kinds of micro-organisms, one of them resembling the bacillus of cholera morbus, but the tests have not yet been completed.

The patient had been in charge of able physicians; his diet had been carefully regulated and a great number of drugs seemed to have been tried in vain. I continued the milk diet that he had been on for several weeks, but insisted upon the milk being boiled and drunk hot, and prescribed for him cachets each containing five grains of beta-naphthol bismuth—three such cachets to be taken three times daily.

November 2d.—Pain had lessened after the first dose of the bismuth the day before, and almost ceased after the third dose this morning, when it was scarcely perceptible. Vomiting occurred but once yesterday. Tongue begins to clear off; slept better; pains in joints stopped. The stools have greatly improved in odor and lost their dark color and frothy appearance. Had only four discharges since first dose of medicine. Temperature, 99° F.

3d.—No pain; temperature normal; no vomiting, but two stools of yellowish color. Says that he feels much better and would like to eat something solid. Tongue but slightly coated; sleep undisturbed. Ordered toasted white bread with butter, salt soda crackers, and poached eggs.

4th.—Appearance greatly changed for the better. None of the morbid symptoms returned. Tongue clean. Had one healthy-looking stool, though still soft. Ravenous appetite. Had a very good sleep for twelve hours, during which he did not wake once. Permitted more variety in his food.

5th.—Greatly improved in every way. Gained three pounds. Had no stool. Ordered to take but one cachet twice daily and to have a clysma if the bowels did not move.

From this day on his recovery was rapid and uninterrupted, and two weeks later he had almost regained his former weight and robust appearance. I induced his parents to go with him to the mountainous country in Virginia. When he returned, a month later, he was the picture of health.

J. H., aged thirty-four years. After eating some oysters, November 11, 1894, was seized with cramps in his stomach and diarrhœa. Ordered bismuth beta-naphthol, fifteen grains, three times daily until better, then to take less. Stopped remedy after but two doses, because of the complete cessation of symptoms after second powder. Neither pain nor diarrhœa returned. Recovered.

W. D., aged fifty-four years. On November 12, 1894, called on me complaining of looseness of his bowels, which had commenced a few days before after eating some ice cream and cake. It always set in immediately after eating. Some eructation. Tongue slightly coated. No other sign of any disease. Prescribed ten grains of beta-naphthol bismuth. Diarrhœa stopped after fifth powder, but, as he had a slight relapse a few days later, I caused him to take for a week five grains of the drug three times a day, then twice, and ultimately once a day. During the first week his bowels had to be opened several times by an injection. This constipation ceased with the withdrawal of the remedy.

C. M., aged sixty-one years. Suffers from frequently recurring attacks of camp diarrhœa contracted during our late war and evidently due to old ulcerations and thickening of lower colon. Beta-naphthol bismuth controlled the diarrhœa perhaps quicker than any other drug (except opium and its preparations), but proved of no avail in the cure of the complaint.

J. R., aged two months. When, on November 20, 1894, I first saw this infant a priest present remarked that we should not torture the little thing, as it plainly was dying. I must admit I myself had scarcely any hope. When the little girl was nine days old the mother's breasts had suddenly ceased the secretion of milk, and the child had been fed in the most injudicious manner possible. The skin was wrinkled and dry; nothing but a withered integument seemed to cover its tiny bones. No ulceration, no specific disease. The baby vomited anything it swallowed and had from ten to fifteen fluid discharges daily. No treatment seemed to improve it. I insisted upon a trained nurse. Every vessel or utensil used for feeding was thoroughly disinfected and kept aseptic; the utmost cleanliness was enjoined; as diet, nothing but rice water to be given with some whisky added, and the following powders to be taken internally:

℞	Pepsin. Boudault	gr. iv;
	Bismuth. β-naphthol	gr. iij;
	Pulv. aromat.	gr. $\frac{1}{8}$;
	Pulv. Doveri	gr. j;
	Saccharin	q. s.

M. ft. pulvis. Sig.: One such powder to be taken three times daily.

The improvement was astonishing. Vomiting ceased the first day; the second the stools, previously of a greenish color, yeasty and of a sour odor—as in cases of so-called acute dyspeptic diarrhœa, undoubtedly a misnomer—had assumed a healthier appearance and their number had been reduced to four; the third day the disease had actually disappeared. The baby recovered completely and is as healthy looking to-day as if it had never suffered from so formidable an attack as the one described.

M. F., aged five months. On December 3, 1894, I found this baby, also "artificially brought up," from similar causes afflicted with the same disease and in nearly the same state as the foregoing. Having made similar arrangements concerning a nurse, disinfection, cleanliness, and a suitable diet to those in the first case, I prescribed the same powders as in J. R.'s. case, except that I substituted the subnitrate of bismuth for the beta-naphthol preparation. Under its influence the vomiting became somewhat less severe and there were also from two to three stools a day less, but otherwise no improvement discernible for three days, when I had recourse to beta-naphthol bismuth. Within twelve hours after the second dose a more decided change occurred; on December 7th the improvement was still more marked, and I increased the dose of the beta-naphthol bismuth by two grains.

December 9th.—Constipation had set in. This infant also made a perfect recovery.

I have administered the drug in a considerable number of cases, but those quoted will suffice to show the effect of the remedy. The more we have reason to suppose that the intestinal contents are in a state of fermentation brought about by the presence of pathogenic bacteria, the more the toxic products of the latter are responsible for the general impairment of the health of the patient, the more there is evidence of auto-intoxication—the more apparent and the more rapid will be the effect of the beta-naphthol bismuth. It far surpasses that of the older preparations of bismuth. In my opinion, and if I can draw such a conclusion from the cases under my charge, the beta-naphthol bismuth—while the most reliable intestinal disinfectant that we possess to-day, and combining with its antiseptic action an astringent effect—can be given with impunity in doses large enough and for a sufficient length of time to achieve our purpose—the cure of diseases due to the presence of infectious material in the alimentary canal—in infants as well as in adults.

507 Franklin Street.

PHENOMENAL PREMATURE MENSTRUATION.

By D. L. PEEPLES, M. D.,
NAVASOTA, TEXAS.

Mrs. W. B., a primipara, was delivered with the forceps of a girl on January 25, 1895, at noon. Five days later, or at the age of five days, January 30, 1895, at 2 p. m., the child began to menstruate, which caused much parental alarm, resulting in a second summons for me. Being absent, I failed to arrive until 6 p. m. On my arrival the nurse informed me that she had cleansed and powdered the parts well an hour previously. On examination, I discovered the vaginal canal fairly well filled (in my mind) with undoubted menstrual blood, as it was traceable just as high up as I possibly could determine, without a particle of abrasion, irritation, injury, or inflammation along the vaginal canal whatever. Cessation of menstruation occurred some time during the following night. The breast and genital organs were remarkably well developed at birth, and created some comment among those present, also vivid impressions upon my own mind. Should this little phenomenon continue to have periodical catamenia, I will report the same.

I might further say that the infant is beautifully developed in every respect and enjoys fine health.

The Shelby County (Indiana) Medical Society.—The seventh annual meeting will be held in Shelbyville on Monday, April 8th. The programme includes the following papers: An Address of Welcome, by Dr. H. M. Connelly; Is the Removal of the Rectum for Malignant Disease ever Justifiable? by Dr. J. M. Mathews, of Louisville; A Plea for Surgical Interference in Malignant Growths, by Dr. A. C. Bernays, of St. Louis; The Management of Scarlet Fever and its Sequelæ, by Dr. James H. Taylor, of Indianapolis; Gastro-enterostomy, by Dr. R. Harvey Reed, of Columbus, O.; Cholecystotomy, by Dr. Edwin Ricketts, of Cincinnati; Hysterical Joint Affections, by Dr. P. S. Conner, of Cincinnati; Tubercular Peritonitis, by Dr. L. H. Dunning, of Indianapolis; Quinsy—its Causes and Prevention, by Dr. L. C. Cline, of Indianapolis; The Indications for Operative Treatment in Fibroid Tumors of the Uterus, by Dr. L. S. McMurtry, of Louisville; Gangrene—Report of a Case, by Dr. M. Drake, of Shelbyville. Dr. R. B. Hall, of Cincinnati, will read a paper, the subject of which is to be announced.

The Michigan College of Medicine and Surgery held its commencement exercises in the Detroit Opera House on Wednesday, the 27th inst.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, MARCH 30, 1895.

MEDICINE AND MUSIC.

Indissolubly as the human conception of heaven is bound up with music, just so inextricably does saintliness on earth ally itself with the healing art. Music and medicine, then, are no strangers to each other. Often has resort been had to music as a therapeutic measure, and its softening and cheering influence has doubtless turned the scales in favor of survival in many a case of grave disease that but for its sustaining action must have proved fatal, and hastened convalescence in innumerable instances. From all this it is not to be wondered at that medical men are so commonly lovers of music in its perfection; indeed, a physician worthy of the name can not be callous or indifferent to the tone art. Few of our profession, however, have been composers of note, so we are all the more gratified to find that one of the physicians of our own country has lately produced a cantata that is spoken of with great praise. The composer we have in mind is Dr. John C. Hemmeter, of Baltimore—the author, it so happens, of one of the articles that we present to our readers in this issue of the *Journal.*

We learn from the *Baltimore American* that Dr. Hemmeter's cantata, entitled A Hymn to Hygeia, is now under rehearsal by the Germania Männerchor, of Baltimore, and that it is to be given in public next Monday evening. Our contributor seems to be the author of both the words and the music. The words, it is said, were originally written to be recited at a banquet given by the Baltimore Medical Journal Club, and the music was composed for a men's chorus and an orchestra of twenty-eight instruments. The whole is understood to have been accomplished during the author's last summer vacation, and it has been dedicated to Professor William H. Welch, of the Johns Hopkins University. The *American* says that the composition is in "modern classical style," including the use of "motives." A Hygeia "motive" is mentioned, also a brook "motive." After a short orchestral prelude, the Hygeia "motive" is "first given out in the reed and wind instruments" and then the tenor and bass voices "at once enter upon a spirited chorus in G major, the harmony beginning in full, massive, ascending chords expressing the glory and honor of the calling of the followers of Æsculapius."

Among the passages that the *American* gives from the words, the following couplet seems to us particularly praiseworthy:

> O thou benignant mother of health and strength and might,
> Bring brother near to brother in knowledge, truth, and right.

We congratulate Dr. Hemmeter on his success in music, and we hope that his professional burdens will not become so engrossing as to interfere with his further cultivation of that sublime art.

SICKNESS AND TRAVEL.

Serious illness is enough of a misfortune under the best of circumstances, and we need not dilate upon its aggravation, sometimes even to the point of despairing misery, when the sick person is in a strange country, in any place where he is regarded as a stranger, or even away from his own home although in a familiar community. The whole world knows this, but perhaps does not appreciate to what a degree the unpleasantness, to use a mild term, is heightened if the disease is infectious, so that the victim is looked upon as a person to be got rid of, to be expelled from hotels, perhaps to be passed on from one town to another, in a wild and unreasonable spirit of self-protection. If the community had a lively comprehension of the hardship and cruelty that are the consequences, we are sure that the establishment of such hospitals for the subjects of infectious disease as the one now contemplated in New York would be urged forward with great speed.

There is a pecuniary aspect to the subject, and with this the *Lancet's* Paris correspondent has lately dealt. In a letter published in that journal for March 16th he says: "The first thing the landlord generally does is to order the removal of the sufferer. In addition to this, damages are very commonly claimed to recoup the house for the real or imaginary prejudice caused by the presence of the patient. Now, it need hardly be said that compulsory removal may entail great danger, nor must it be forgotten that the presence of a case of scarlet fever has not unfrequently been successfully concealed from the other denizens of the establishment, in which case it is hard to appreciate the loss of credit or custom incurred by Boniface. The right of the landlord to enforce removal and the payment of damages is rarely contested by the victim, who has then nothing to do but submit. Now the traveling public should know that by a judgment delivered by the Sixth Chamber of the Paris Cour d'Appel on February 1, 1895—a judgment confirmatory of the ruling of the Civil Tribunal of the Seine, dated June 30, 1893—the position assumed by the landlord in such a contingency is untenable. In the judgment it is expressly stated that damages can not be claimed from a visitor for the trouble and possible loss caused by the presence in the hotel of a member of that visitor's family affected with an infectious disease, provided that the medical attendant delivers a certificate to the effect that risk to life would attend removal to another house. The traveler can resist removal even if the landlord has served him with a formal notice to quit at the very onset of the illness. It is held that the illness is an accident beyond the sufferer's control, and that, further, such an unfortunate occurrence forms part and parcel of the obvious risks attending hotel-keeping. It is ruled, however, that the visitor is responsible for the expenses incurred for the cleansing and disinfection of the premises occupied by him." Still, the writer is of the opinion that in cases where gross extortion is not attempted it is best for the traveler to meet the landlord half-way.

MINOR PARAGRAPHS.

MEDICAL LEGISLATION IN ARKANSAS.

A bill to supersede the State board of medical examiners by county boards has been passed by the Legislature and vetoed by the Governor. If the bill becomes a law, as it may, for the House has passed it over the veto, it will restore the state of things that existed before the present State board was established, and, as we understand it, both that condition and the one now existing can have to do only with non-graduates. A uniform standard throughout the State seems desirable on general principles, but there may be special features of the medical situation in Arkansas that may be adduced as reasons for returning to the old order of licensing. The bill is still pending in the Senate, and we hope it will be considered most thoroughly in that body before the Governor's objections are overridden.

NEW JOURNALS.

In addition to the new medical journals already mentioned by us since the beginning of the year, we have lately received the first number of the *Vermont Medical Monthly*, published in Burlington, and that of the *Canadian Medical Review*, a monthly published in Toronto. Each of these new journals is handsomely printed and illustrated, and both appear to deserve success.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending March 26, 1895:

DISEASES.	Week ending Mar. 19.		Week ending Mar. 26.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	5	3	5	1
Scarlet fever	130	14	106	18
Cerebro-spinal meningitis	2	1	3	7
Measles	134	14	162	18
Diphtheria	204	30	219	41
Small-pox	0	0	6	0
Tuberculosis	84	143	88	130

The New York Medico-surgical Society.—At the next meeting, on Monday, April 1st, Dr. Frederick A. Lyons will read a paper entitled What is Gonorrhœa in Women? The following named gentlemen are expected to take part in the discussion: Dr. Robert W. Taylor, Dr. A. Palmer Dudley, Dr. Augustin H. Goelet, Dr. S. Lustgarten, Dr. J. H. Gunning, Dr. L. Bolton Bangs, and Dr. E. B. Ramsdell.

The Mississippi Valley Medical Association.—We have been assured by the president of the association, Dr. Wishard, of Indianapolis, that the preparations for the September meeting in Detroit are in a very promising state of advancement. We feel confident that the meeting will be most successful.

The Kentucky State Medical Society.—The fortieth annual meeting will be held in Harrodsburg, on Wednesday, Thursday, and Friday, June 12, 13, and 14, 1895. Dr. Steele Bailey, of Stanford, permanent secretary, may be addressed for further information.

Change of Address.—Dr. Henry Koplik, to No. 32 West Thirty-third Street, New York.

The Late Dr. Bernard E. Vaughan.—At a stated meeting of the Society of the Alumni of St. Luke's Hospital held on

March 12th the undersigned committee was appointed to formulate and publish appropriate expressions of sorrow in reference to the death of Dr. Bernard E. Vaughan. In accordance with this authorization the committee have adopted the following preamble and resolutions:

Whereas, In the wisdom of Almighty God it has been decreed to remove from among us our esteemed associate Dr. Bernard E. Vaughan, who has been so thoroughly identified with the interests of the society and with the work and advancement of the profession to which we belong; be it therefore

Resolved, That in the death of Dr. Vaughan we have met with a great loss, that of one whom we valued as a friend and respected for his earnest and untiring work.

Resolved, That the society extend to his bereaved family its sincere sympathy and condolence.

Resolved, That this preamble and these resolutions be entered upon the minutes of the society, and published in the *New York Medical Journal* and the New York *Medical Record.*

W. H. Caswell, M. D.,
[Signed.] Thomas S. Southworth, M. D., } *Committee.*
J. Van Doren Young, M. D.,

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 17 to March 23, 1895:*

Frick, Euclid B., Captain and Assistant Surgeon, will be relieved from duty at Fort Townsend, Washington, to take effect upon the expiration of his present leave of absence, and will then report for duty at the Presidio of San Francisco, Cal., relieving Willcox, Charles, Captain and Assistant Surgeon. Captain Willcox, upon being thus relieved, will report for duty at the U. S. Military Academy, West Point, N. Y., relieving Reynolds, Frederick P., First Lieutenant and Assistant Surgeon. Lieutenant Reynolds, on being thus relieved, will report for duty at Fort Sam Houston, Texas.

Harvey, Philip F., Major and Assistant Surgeon. The leave of absence for seven days granted him is extended twenty-one days.

Porter, Alexander S., First Lieutenant and Assistant Surgeon. The leave of absence granted him on surgeon's certificate of disability is extended four months on surgeon's certificate of disability.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 23, 1895:*

Bradley, Michael, Medical Director. Ordered before the retiring board, March 20, 1895.

Hesler, F. A., Passed Assistant Surgeon. Ordered to the U. S. Steamer Philadelphia.

Crandall, R. P., Passed Assistant Surgeon. Detached from the U. S. Steamer Philadelphia, ordered home, and granted three months' leave of absence.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending March 15, 1895:*

Godfrey, John, Surgeon. Detailed as chairman board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

Irwin, Fairfax, Surgeon. To inspect Cape Charles Quarantine Station. March 9, 1895.

Mead, F. W., Surgeon. Detailed as chairman board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

Glennan, A. H., Passed Assistant Surgeon. To report at Bureau for special temporary duty. March 12, 1895.

Gardner, C. H., Assistant Surgeon. To proceed to Angel Island Quarantine Station for temporary duty. March 4, 1895. Detailed as recorder board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

Stewart, W. J. S., Assistant Surgeon. Detailed as recorder board for physical examination of candidates, Revenue Cutter Service. March 6, 1895.

Oakley, J. H., Assistant Surgeon. Detailed for duty on Revenue Steamer Rush. March 13, 1895.

Cumming, H. S., Assistant Surgeon. To proceed to Boston, Mass., for temporary duty. March 6, 1895.

Society Meetings for the Coming Week:

Monday, *April 1st:* New York Academy of Sciences (Section in Biology); Morrisania Medical Society, New York (private); German Medical Society of the City of New York; New York Medico-surgical Society; Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association (annual); Providence, R. I., Medical Association; Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society (annual).

Tuesday, *April 2d:* Tri-State Medical Society of Iowa, Illinois, and Missouri (first day—St. Louis); Medical Association of the District of Columbia (first day—Washington, D. C.); New York Neurological Society; New York Obstetrical Society (private); Buffalo, N. Y., Medical and Surgical Association (annual); Elmira, N. Y., Academy of Medicine; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Broome (quarterly) and Niagara (quarterly—Lockport), N. Y.; Essex, N. J. (annual—Newark), Hudson, N. J. (Jersey City), and Union, N. J. (annual—Elizabeth), County Medical Societies; Androscoggin, Me., County Medical Association (Lewiston); Chittenden, Vt., County Medical Society; Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore).

Wednesday, *April 3d:* Tri-State Medical Society of Iowa, Illinois, and Missouri (second day); Medical Association of the District of Columbia (second day); New York Academy of Medicine (Section in Public Health); Society of Alumni of Bellevue Hospital, New York; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond, N. Y. (Stapleton); Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

Thursday, *April 4th:* Tri-State Medical Society of Iowa, Illinois, and Missouri (third day); Medical Association of the District of Columbia (third day); New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington); Boston Medico-psychological Association; Washington, Vt., County Medical Society.

Friday, *April 5th:* Practitioners' Society of New York (private); Baltimore Clinical Society.

Saturday, *April 6th:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society, New York (private); Miller's River, Mass., Medical Society.

Answers to Correspondents:

No. 433.—According to our latest information, the following are the requirements for the practice of medicine in the different States: Alabama, Arkansas, California, Colorado, Florida, Illinois, Indian Territory, Iowa, Maryland, Minnesota, Mississippi, Missouri, Montana, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, and West Virginia require the passing of a personal examination before the State board of medical examiners. Registration with a county clerk and the presentation of an authorized diploma are required in Arizona, Connecticut, Delaware, Georgia, Idaho, Indiana, Kansas, Massachusetts, and Wyoming. The indorsement of a diploma by a committee of the medical society is required in the District of Columbia and from the State boards of health in Kentucky, Louisiana, Nebraska, and Oklahoma. There are not to our knowledge any legal requirements in Maine, New Hampshire, or Rhode Island.

Births, Marriages, and Deaths.

Died.

Barkeley.—In Chattanooga, Tenn., on Thursday, March 21st, Dr. T. C. V. Barkeley.

Mershon.—In Newark, N. J., on Friday, March 22d, Dr. Richard Blackwell Mershon.

Milling.—In Alden Bridge, La., on Sunday, March 17th, Dr. J. S. Milling, aged sixty-five years.

Ruschenberger.—In Philadelphia, on Tuesday, March 26th, Dr. William S. Ruschenberger, of the navy, aged eighty-eight years.

Taylor.—In New York, on Saturday, March 23d, Dr. James R. Taylor.

Whitman.—In Gardiner, Me., on Saturday, March 23d, Dr. Caleb S. Whitman.

Proceedings of Societies.

SOCIETY OF THE ALUMNI OF CHARITY HOSPITAL

Meeting of February 6, 1895.

The President, Dr. Adolph Rupp, in the Chair.

Dr. E. Pierre Mallett, Secretary.

Antitoxine and Diphtheria.—The President, in a brief paper with this title, spoke of the failure of so many remedies at one time highly and plausibly recommended for the cure of bad or severe cases of diphtheria. The most recent remedy, antitoxine, had gained not only professional but lay attention; however, the whole question seemed as yet in an unsettled and unsatisfactory state. He quoted Dr. A. Campbell White, who strongly advocated antitoxine on a basis of a mortality of 23·8 per cent. in a series of four hundred and eighty-six cases. He also cited a series of one hundred and twenty-one cases of diphtheria treated by Dr. Körte (Berlin) with antitoxine, resulting in a total mortality of 31·1 per cent. Körte had divided his cases into three classes—(1) mild, (2) moderately severe, and (3) severe or grave cases. In Körte's forty-three severe cases there had been a mortality of 59·2 per cent., in his forty-seven moderately severe cases a mortality of 29·8 per cent., and in his thirty-one mild cases a mortality of 3·3 per cent. As a matter of comparison, the speaker stated that he had lost a fraction less than twenty-four per cent. of his patients treated in private practice during the past thirteen years. Facts such as these justified the doubts of some concerning the value of antitoxine as a specific for diphtheria. Antitoxine might be a specific for bacillary diphtheria—*i. e.*, the diphtheritic symptoms due to the Klebs-Loeffler bacillus. But time and further experience alone could tell us of these matters beyond doubt.

The speaker reported the case of a girl, five years and nine months old, who had been subjected to the antitoxine treatment on the eighth day of the disease (diphtheria). Dr. Bensel had injected twenty-five cubic centimetres of antitoxine furnished by the Health Department on January 23d, twenty cubic centimetres on the 24th, ten cubic centimetres on the 25th, and ten cubic centimetres on the 26th—in all sixty-five cubic centimetres of antitoxine in the course of four days. Local cleanliness had been maintained during this time, and stimulants had been administered, besides iron, and absolute rest had also been successfully maintained. The false membrane in the larynx had continued to form and creep up on the palate. Neither the temperature nor the urine had been influenced, so far as the albumin could indicate change, by the antitoxine. The child had lived five days after the last antitoxine injection had been administered. The speaker thought antitoxine in this case had had no effect for better or for worse.

Dr. A. Campbell White said that he thought one must first believe in bacteriology before one believed in the antitoxine. If one was not satisfied that the bacillus was at the foundation of all cases of true diphtheria, one could hardly believe in any such treatment as that with an antitoxine which was derived from this bacillus. In studying the effect of antitoxines upon diphtheria one should thoroughly appreciate the different conditions that might arise independent of the infection. The rule in diphtheria was a low temperature. In children suffering with laryngeal stenosis the temperature would rise from the mere effect of the stenosis; and in those having diphtheria there were so many conditions that might cause a rise of temperature that it was difficult to determine how much effect antitoxine would have on the temperature. He thought it had no effect on the temperature, unless it was to cause a short rise immediately after the injection, which was probably due to the injection of a large quantity of fluid into the patient. In the case mentioned by the previous speaker the amount of the solution given showed that it had been a mild one, and all the statistics showed that more favorable results were obtained from the stronger solutions. Behring's solution No. 3 he had seen used several times, and the patients had all recovered; the No. 2 he had never seen any marked effect from, although the patients had recovered; and as to the No. 1, many patients treated with it had died. Of Aronson's solution there was only one strength, and it produced decided effects some nine or ten hours after the injection. The injection was followed by a slight rise of temperature, the pulse improved, the symptoms of stenosis lessened, and there was a marked change in the general condition of the patient. A child sick at the time of the injection in the evening would be surprisingly well on the following morning. The membrane disappeared within eight or nine days. He had seen about a hundred cases treated, and in none of them had there been any complication that could be attributed to the antitoxine, unless it might be a slight rash that disappeared in a few hours. He thought if antitoxine had any good effect at all it must be a specific. Almost all the criticism against antitoxine came from those people who had had but a limited experience, and all having a large hospital experience, seeing its effect in some two or three hundred cases, spoke favorably of this treatment.

Dr. Louis Fischer agreed with the previous speaker that the greatest amount of skepticism was shown by those who had had the smallest number of cases. He thought one should be particular as to the kind of antitoxine used, as he recently had had three different kinds sent to his office. Antitoxine when injected gave no local reaction; it worked antiseptically, there was no elevation of temperature or chill, nothing to show that anything had been injected, which was not the case with injections of tuberculin for tuberculosis. In tuberculin injections one always waited for paroxysms of fever, chills, perspiration, etc., to subside before giving a second injection. In the use of antitoxine nothing of the kind occurred unless through some mistake. The low temperature in the most malignant cases of diphtheria he thought an important point. The temperature merely showed how much active septic matter there was in the system; the greater the amount of septic matter, the higher the temperature at times. He referred to Professor Baginsky, who had made a special study of the urine and found many cases in which the albumin was increased, and believed it might be due to the antitoxines. He asked Dr. White if he had noticed that the antitoxine had modified the membrane. He thought the first evidence of the effect of the remedy was the melting away of the membrane. While the membrane was merely a local manifestation of the trouble, abroad it was looked upon as an important factor to gauge the course of the subsequent treatment of the case. Behring's solution No. 1 was used only for prophylactic purposes; Behring's No. 2 for mild cases; Behring's No. 3 for malignant cases of diphtheria, and he had seen some very good results from it. In the case reported by the president, sixty-five cubic centimetres was an enormous dose; he had never used more than twenty-five. He did not rely only on the antitoxine, but included local antisepsis in every case. Calomel was the best cathartic. He thought if the president would try Behring's antiseptic, or Aronson's, and use it freely, he would have much better effects. Aronson made one *Heilserum* for testing purposes and one for prophylactic purposes; of the *Heilserum* five cubic centimetres injected in the interscapular region was equivalent in strength and action to ten cubic centimetres of Behring's No. 2. It was only necessary, however, to observe the patient's general condition after the first twenty-four hours following the injection; if we found any improvement, then it was not necessary to reinject, but if no visible improvement in pseudo-membrane—pulse, temperature, condition of skin, urine, expression, or appetite—took place, then he advised by all means to again inject, and, if possible, double the first dose. Impurities in the serum, due to glanders in the horse and other foreign impurities, had caused eruption of various kinds from an erythema simplex to a purpura hæmorrhagica.

In this class of cases great care was necessary, and they should be continuously treated with antitoxine. Stimulation should not be begun in all antitoxine cases, rather only where the heart and pulse showed extreme feebleness.

Dr. W. B. Johnson spoke of cases he had seen treated with Behring's solution for immunization. One of the patients had recovered, and there had been no local effect from the injection. Another patient had gone into a period of excessive excitability, approaching convulsive movements, which might have been due to excessive stimulation or to the antitoxine; in the course of thirteen or fourteen hours the patient had died. A third case had occurred in the same family, in a child two years and a half old; the child had had very severe croup and dyspnœa. The speaker had been asked in to intubate, which he had done, and a single injection of a drachm of Behring's six-hundred-antitoxine-unit solution had been given. The temperature had gone down from 104° to 101·5° by the next day; at the end of the sixth day the tube had been removed, the progress of the disease had been uneventful, and the child had recovered. He asked as to the use of the protective solution for a cure, and also as to its possible deleterious effect, and the size of the dose of that and the other solutions of antitoxine.

Dr. White stated that he had seen no marked effect upon the membrane causing it to disappear immediately. In the case he had reported, treated with Aronson's strong solution, the membrane had not disappeared till the ninth day. There had been a marked diminution of the swelling, but the stay of the membrane had not been shortened probably more than a day. The skin injections had been based upon the general condition of the patient—whether the glands of the neck had been larger or smaller—and the condition of the pulse. He believed it prevented extension of the growth, and this had been very marked in the tracheotomy and intubation cases; in these cases the patients had almost invariably died from the extension of the membrane, and the patients treated with the antitoxine had not.

The Pathology and Clinical History of Influenza.—Dr. R. C. Newton read a paper on this subject. He stated that the first accurate record of the disease had been in the year 1510, and that it had reappeared at intervals of about twenty years. In the great epidemic of 1889–'90 it had traveled from St. Petersburg to New York in six weeks, which had surpassed all former records; its speed in crossing the earth had increased with improved facilities of travel. The disease was difficult to diagnosticate, as the symptoms resembled those in other fevers. Typhoid fever, cerebro spinal meningitis, and typhus fever would soon reveal their true nature; but dengue or dandy fever was so like the grippe that some thought it the grippe of hot climates. Bacteriology was a great help, and the bacillus of Pfeiffer was probably the true cause of the disease. Animals were affected, and the contagion was alleged to spread from them to man. The connection between cerebro-spinal fever, pneumonia, and influenza had been pointed out more than once. In short, both pneumonia and cerebro-spinal fever might be produced by various bacteria. The grippe bacillus, for instance, might produce either or both of them, as well as the typhoid bacillus. The connection between influenza and cerebro-spinal fever had been alluded to in the *Transactions of the American Medical Association* in 1866, when it had been stated that the "spotted fever," which occurred at the same time as the grippe, resembled it so closely that many thought the contagion of the epidemic influenza in its intensity might produce spotted fever. In influenza the virulence of all micro-organisms was raised to the highest degree. This fact explained the frequency of secondary infections, giving rise to the various complications and sequelæ. Old nervous troubles were apt to be relighted and to burn with increased energy. An old and supposedly cured syphilis would return to plague its possessor. One specially noticeable feature of the complicating lesions of this disease was their tendency to bilateralism, orchitis and otitis particularly showing this, which was a powerful proof of its microbic origin. Of the nervous lesions, every form of nervous disease and every form of insanity seemed to be caused by grippe. Autopsies were rare, as the disease was seldom fatal, but two had been reported in which death had occurred as a result of brain lesion; in both, hæmorrhagic foci had been found in the white and gray substance of both hemispheres. In eleven other autopsies intense hyperæmia of the pia mater at the base of the brain had been present; the arteries had been distended and the consistency of the brain and spinal cord had increased. It was believed that this hyperæmia was more than an evidence of vaso-motor disturbance, and pointed to the natural association between influenza and epidemic cerebro-spinal meningitis. The contagion was very pervasive, short-lived, and seemed to thrive best in cold weather. We were probably at or near the end of the epidemic of 1890. It was a wonderful and interesting disease, and the prospects of its true ætiology, pathology, and diagnosis being established on a sure foundation by the bacteriologists, was a matter for profound congratulation.

The Symptomatology and Treatment of Influenza.—Dr. W. L. Stowell, in a paper on this subject, stated that the poison of influenza interfered with the functions of many organs of the body and gave rise to a great variety of symptoms. The leading ones were referable to the respiratory, nervous, or digestive system. The disease was essentially a catarrh, hence sneezing, coryza, and irritation of the throat were early symptoms. In one it took the form of exudative amygdalitis, in another laryngitis, sometimes suppurative amygdalitis. In weak persons at the extremes of life the abundant secretion caused pulmonary collapse after coughing and started bronchitis or lobular pneumonia. Laryngitis in adults led to aphonia and harsh voice sounds, in children it was usually catarrhal and caused croupy breathing. Enlargement of the parotid glands, otitis with suppuration, and enlargement of the upper cervical lymphatic glands were observed. The digestive disturbances were loss of appetite and nausea and vomiting. The bowels were rarely normal, constipation being present early and diarrhœa coming later, seemingly to mark a crisis and return to health. The symptoms of the nervous system were stupor, intense headache, vertigo, languor, depression of spirits, lack of interest in surroundings, and general mental numbness; children often had convulsions. The pains were intense and varied only in seat and degree. Some had trifacial neuralgia, others pains in the neck, articular pains, and a feeling of soreness everywhere; pains in the chest like intercostal neuralgia, pains in the stomach and bowels, and cramps in the legs. Convulsions, delirium, and stupor were most common in the young; melancholia, less pain, but more pulmonary trouble, seemed to fall to the aged. High temperature indicated complications. A weak pulse was common in most cases of poisoning. The kidneys were inactive, while congestion was everywhere present and normal secretion lessened; the urine was high-colored and of high specific gravity, and might contain albumin. The speaker referred to cases he had seen with complications of syphilis, pertussis, and erysipelas of the face and leg; one case of phthisis had been thought to have originated with an attack of *la grippe;* one woman pregnant at the third month had aborted; a nurse had been seized with measles immediately after an attack of the disease; another had had pleuro-pneumonia and had died.

Treatment.—Nutrition must be maintained and elimination promoted, from the lungs by expectorants, from the digestive tract by cathartics. Phenacetine, antipyrine, and acetanilide were best for the headache. The old-fashioned diuretics and diaphoretics relieved fever and joint aches. Salicylate of sodium and carbonate of ammonium in maltine were other remedies. For slow convalescence, beef juice, eggs and milk, wine whey, and malt with iron or cod-liver oil were useful. Embrocations were helpful, using alcohol one night and olive oil the next.

With advancing civilization the scourge had quickened its pace and covered the globe in a fraction of its former time. Its mortality was the same under nineteenth-century treatment as hundreds of years ago, few dying directly of the disease, but many of secondary complications. The aged suffered most and children least, because the latter were usually free from organic disease of heart, lungs, or kidneys. The one thing discovered was the cause—the bacillus found by Pfeiffer and Canon—but how to meet and annihilate this invader remained to be demonstrated.

Dr. Henry S. Oppenheimer spoke of three cases that he had seen lately, all in young men. One, a draughtsman, aged thirty, had complained of seeing double and growing dizzy. On examination he had about a tenth of normal vision in the right eye; his field had been narrowed. The pupil had been dilated widely. The motion of the eye upward had been very painful, due to the stretching of the inferior rectus muscle of that eye, which had been paretic. The nerve had been hazy and the retina between the disk and the macula had also been a little opacified, with some minute striation. The eye had been more prominent than its mate. The diagnosis had been retro-bulbo-neuritis, or inflammation of the optic nerve in the orbit back of the eye. As to causation, there had been nothing except that the man had had the grippe, but not so severe that he could not work. There had been no history of syphilis. The man had been nervous, his pulse rapid and not strong, and there had been no murmur. The second case had been that of a barkeeper, aged twenty-four. There had been ecchymosis in the lids and conjunctivæ of both eyes. He had with the left eye about a fourth of normal vision. His pupil had not been dilated, and he had presented exactly the same appearance of the fundus as in the previous case. The nerve had been perhaps a little more affected, and the retina between the nerve and the macula not so much as in the other case, but still there had been a little haziness. The third case had been that of a young man, aged twenty-seven, whom the speaker had known from childhood. He had had the grippe for two weeks, suffering mostly from muscular pains in the back and side. On examination, his vision in the right eye had been reduced to a tenth, his color field had contracted to about ten degrees from the fixation point, but had been perfect within this limit; he could distinguish shades even. There had been a tremendous swelling of the optic disk, and of the retina near it. There had been numerous small hæmorrhages within this region, and the veins had been large and very tortuous. The pupil had been normal, as had also been his field for white. Now, in these three cases there had been neuritis of one eye only. The second eye in each case had appeared normal. There had been no history of syphilis in any one of these cases, and only in the first one had a suspicion of it been created by the fact that the man's wife had had six children, five of whom had died in infancy. The three men had had grippe, and that had been the only evident cause of the neuritis. In the second case the man had been coughing, and, being a rather plethoric fellow, this probably had caused the hæmorrhage under the skin and conjunctivæ.

Dr. Beverley Robinson thought the grippe a queer sort of a disease that showed its manifestations in a variety of ways. He spoke of the need of a specific to allay the poison as antitoxine was alleged to do for diphtheria. For the last two years he had combated the disease by keeping the patients in creosote vapor. It was an antiseptic that could be taken in large doses without harm, while carbolic acid, if inhaled by the individual, would be injurious, and turpentine did not have the antiseptic power of creosote. If taken in the fluid form it would upset the stomach and might affect the kidneys, but if vaporized it would not affect the stomach. He had used it in many cases of croupous pneumonia with good results. If the respiratory passages were rendered aseptic the micro-organisms could not live there. He thought scientists only followed the empiricists. The scientist might give the explanation of why a drug was helpful, but the empiricist was the discoverer of the remedy.

Dr. F. M. Warner spoke of the phases of the disease in children—the inflammation of the respiratory passages and catarrhal inflammation of the gastro-intestinal tract, particularly laryngitis and gastro-enteritis. In one case the laryngitis had been so severe that it had been a question whether there had not been a croupous exudation existing. The child had made a recovery without intubation. The gastro-enteritis had been so severe in one case that after a lapse of forty-eight hours the child had been almost in the condition of one after a violent attack of gastro-enteritis in the hot summer season, had lost a great many pounds of flesh, and had had constant liquid movements. Nephritis was pretty constantly present, but seldom discovered, because the urine was seldom examined in young children. He spoke of using creosote vapor where there was a cough following the grippe, where the cough did not yield to other remedies. He used a fifty-per-cent. solution of creosote and terebene by means of Dr. Robinson's inhaler, and also gave creosote internally.

Dr. Robinson stated that he used creosote in the following way: He vaporized it in the room, made a solution of a drachm of the creosote to an ounce of alcohol, and added a teaspoonful of this mixture to a pint of hot water, keeping up the inhalation for twenty-four or forty-eight hours at a time.

Dr. W. L. Carr spoke of the inflammatory troubles in children connected with catarrhal diseases of the respiratory tract. He referred to two recent cases in children. One had had a naso-pharyngeal and bronchial catarrh following an attack of *la grippe*. The child's respiration had been 68, pulse 148, temperature 104° F. There had been quite a little catarrhal condition and bronchitis. What had been especially noticeable had been the absence of respiratory murmur at the base of the left lung. The speaker had ordered a hot bath, counter irritation of the chest, and a dose of calomel. On the following day the temperature had fallen two degrees; within twenty-four hours the temperature had been normal. There had been a continuance of some mucous sounds, but no fine râles of any kind. Within forty-eight hours the child had had acute pneumonia of the left side and had gone through a regular course. The other case had occurred in a syphilitic child. There had been at the right base the absence of respiratory murmur, with almost the same history; the temperature (102·5°) had dropped to normal without any medicine or bath. At the end of fifty-two hours the child had had a temperature that had run up suddenly to 105° F. The child had had pneumonia followed by empyema, from which it had been convalescent. The peculiarity had been the absence of respiratory murmur and the occurrence of the pneumonia after the temperature had been normal for forty-eight hours. He thought antiseptics in almost all cases were of service locally, and advised the use of irrigation with mild alkaline solutions. Creosote and eucalyptus had proved beneficial when used for inhalation from a croup kettle.

Book Notices.

The Elements of Pathological Histology; with Special Reference to Practical Methods. By Dr. Anton Weichselbaum, Professor of Pathological Anatomy and Director of the Institute of Pathological Anatomy in the University of Vienna. Translated by W. R. Dawson, M. D. (Dub.), Demonstrator of Pathology in the Royal College of Surgeons, Ireland, etc. With Eight Plates and a Large Number of Illustrations in the Text, some of which are Colored. London and New York: Longmans, Green, & Co., 1895. Pp. xv–7 to 456.

In translating this work Dr. Dawson has arranged the text in chapters in which the practical portion is printed in smaller type than the descriptive, so as to facilitate reference; he has interpolated the exact zoölogical names of the animal parasites and made some other insertions in relation to terminology; and he has introduced descriptions of the method of fixing specimens for section-cutting by imbedding them in frozen gum, and has described Bevan Lewis's modified fresh method of examining the brain. These are the essential differences between this work and the German edition, that appeared some three years ago.

The author's aim in preparing the work was to provide a guide in which the inexperienced might find brief and concise descriptions of the doctrines of pathology and of the most useful and practical methods for its investigation. Accordingly the volume is divided into three parts, the first dealing with the general methods of investigation, the second with general pathological histology, and the third with special pathological histology.

The first part describes the histological and bacteriological methods of investigation, including the methods of transmission of pure cultures of micro-organisms to animals. The second part describes the retrograde and progressive changes in tissues, neoplasms, and parasites. In the third part the organs are separately considered, the different chapters treating of the blood; the circulatory apparatus; the spleen, the lymphatic and the thyreoid glands, and suprarenal capsules; the digestive apparatus; the liver, bile-ducts, and pancreas; the respiratory apparatus; the urinary apparatus; the generative apparatus; the nervous system; the organs of locomotion; the skin; the eye; and the ear. At the end of each chapter the best methods of examination are described, and their diagnostic value is specified.

In the examination of the tissues of the nervous system the author prefers Weigert's stain, Pol's modification of the same, Heidenhain's method, and Adamkiewicz's method. We should have been glad to learn the author's or the translator's experience with formalin.

The chapters on the eye and the ear are noticeable on account of the detail with which the pathology of diseases of these organs is described; too often it is scarcely referred to in text-books on this subject.

The illustrations are beautiful and their number is such that the student should never be at a loss in regard to the appearance of any pathological condition.

The volume is a useful addition to our text-books, and the excellence with which the translator has fulfilled his task makes the work pleasant reading.

La Paralysie générale. Par V. Magnan, médecin de l'Asile Sainte-Anne, etc., and Paul Sérieux, médecin-adjoint à l'Asile de Villejuif. Paris: G. Masson, 1894. Pp. 5 to 193. [*Encyclopédie scientifique des aide-mémoire.*]

The increase of general paresis in frequency of occurrence makes that disease a matter of great interest to the profession. This little volume does not purport to do more than give the essential data in regard to the symptoms, progress, duration, pathology, ætiology, diagnosis, and treatment of the disease, and it may be recommended as a thorough review of our present knowledge of the subject.

The Middlesex Hospital. Reports of the Medical and Surgical Registrars and Pathologist for the Year 1893.

Dr. F. J. Wethered reports that during the year 1,323 medical patients were treated, of whom 1,001 were discharged, 25 were transferred to the surgical wards, 169 died, and 128 remained in the hospital on the first day of January, 1894. The general table of diseases is arranged in accordance with the classification recommended in the Nomenclature of Diseases of the Royal College of Physicians. There are *résumés* of the histories of fifty-two cases of diphtheria, in which there was a motality of 42·3 per cent., of twenty-one cases of enteric fever, in which there was a mortality of nineteen per cent., and of cases of influenza, empyema, pneumonia, aneurysm, typhlitis, and some rare diseases.

Mr. C. E. L. B. Hudson reports that 2,749 surgical patients were treated, of whom 2,171 were discharged, 303 died, and 275 remained at the end of the year. The average duration of treatment was 22·8 days. There are abstracts of the histories of cases of hernia, perityphlitis, intestinal obstruction, gallstones, laparotomy, and compound fracture, and of 118 operations on the kidney performed during fourteen years. There is also a summary of the gynæcological work performed in the hospital.

The volume affords excellent evidence of the good work done by the medical staff of the institution.

Relations of Diseases of the Eye to General Diseases. By Max Knies, M. D., Professor Extraordinary at the University of Freiburg. Forming a Supplementary Volume to every Manual and Text-book of Practical Medicine and Ophthalmology. Edited by Henry D. Noyes, A. M., M. D., Professor of Ophthalmology and Otology in Bellevue Hospital Medical College, etc. New York: William Wood & Co., 1895. Pp. x–467. [Price, $4 25.]

The medical profession is indebted to Dr. Noyes for editing a work that deserved to be put into English dress almost two years ago. It is eighteen years since Foerster first dealt with the subject in von Graefe and Saemisch's *Handbook of Ophthalmology;* his essay was followed by that of Rampoldi; then Jacobson, in his work on diseases of the eye, devoted the second part of the volume to the relation of the eye to general disease; and finally Berger published his study on the same topic.

This important subject is scarcely referred to in any of the text-books on diagnosis, on theory and practice of medicine, or on diseases of the eye. As the editor very truly says, the alliances between the eye and the rest of the body are so admirably traced throughout this volume that it will be hard to decide whether the general practitioner or the ophthalmologist is under the greater obligation to the author.

As might be supposed, almost half of the book is devoted to diseases of the nervous system. After a description of the anatomical course of the nerves of the eye, the disorders in their domain are considered, and this is followed by a narration of the ocular symptoms in individual diseases of the brain and its membranes, of the spinal cord, and of the nerves, and in the functional neuropsychoses.

It is not apparent why, in the chapter on diseases of the skin, erysipelas, which is an infectious disease, should be treated of; and if lepra is considered in the chapter on chronic infectious diseases, why is not lupus? Insolation seems to be absolutely out of place in this chapter, especially as it is referred to in the chapter on diseases of the nervous system.

Separate chapters are devoted to diseases of the digestive, of the respiratory, of the circulatory, of the urinary, and of the sexual organs. The final chapters are devoted to the influence of poisons and infectious diseases on the eye, and to that of constitutional diseases.

Occasionally a repetition of facts occurs, but these are unimportant faults in a work of this kind. The volume should be carefully studied by all physicians, and it demonstrates how necessary it is for the physician, and especially the specialist, to have a knowledge of general medicine as well as of the specialties.

A Manual of Diseases of the Ear for the Use of Students and Practitioners of Medicine. By Albert H. Buck, M. D., Clinical Professor of the Diseases of the Ear, College of Physicians and Surgeons, New York, etc. Second Revised Edition. New York: William Wood & Co., 1895. Pp. x–457.

The able author of this work has taken occasion in the preparation of this second edition to add a new chapter on the analysis of symptoms, to contribute additional text to the chapter on chronic purulent inflammation of the middle ear, and to re-write the chapter on operations on the mastoid process.

The chapter on the analysis of symptoms is likely to prove very useful to the student. It deals with symptoms of disturbances of the function of hearing, including subjective noises, the sensation of something moving in the ear when the head is moved, the sensation of pressure or fullness in the ear, unnatural resonance of one's own voice in the affected ear, pulsation or throbbing, itching or soreness, pain, discharge from the ear, vertigo, and a sensation of numbness.

In the revision of the chapter on diseases of the mastoid process the author maintains the superiority of the chisel to the drill in the operation of opening the mastoid antrum, and he takes issue with Macewen, who, in his *magnum opus*, advocated recourse to the drill alone. While aural surgeons are generally in favor of the use of the chisel, the general surgeons are by no means partial to it; to the reviewer it seems that, in the hands of an inexperienced operator, the drill is less likely to cause injury than the chisel.

The manual is a comprehensive and careful piece of literary and professional work, and deserves the popularity that has been accorded to it.

The Physician's Vade Mecum. Being a Handbook of Medical and Surgical Reference, with other Useful Information and Tables. By Sebastian J. Wimmer, M. A., M. D. With Additions by Frank E. Parsons, M. D. Philadelphia: The Medical Publishing Company, 1894. Pp. 7 to 483. [Price, $1.]

This little book is intended to be a compact work of reference as to doses, abbreviations, synonyms, the management of emergencies, the symptoms and classification of skin diseases, diseases of the digestive system, miasmatic diseases, and fevers, favorite prescriptions, and various other matters of interest to physicians. It contains a great deal of useful information.

The Aseptic Treatment of Wounds. By Dr. C. Schimmelbusch, Privat-docent and Assistant Surgeon in Professor von Bergmann's University Clinic at Berlin. With a Preface by Professor von Bergmann. Translated from the Second German Edition by Alfred Theodore Rake, M. B., B. S. (Lond.), F. R. C. S. (Eng.), Registrar and Pathologist to the East London Hospital for Children, etc. London: H. K. Lewis, 1894. Pp. xvi–250. [Price, 5*s.*]

Mr. Rake calls attention to the fact that in aseptic surgery the great object aimed at is that everything that comes into contact with the wound shall be absolutely free from germs that are pathogenic in man or that are putrefactive; while in antiseptic surgery the wound and everything coming in contact with it is impregnated with some antiseptic solution. The former, therefore, is the cheaper method in hospital work, the chief cost being in the amount paid for apparatus. A Lautenschlaeger's steam sterilizer costs about eighty dollars, a Schimmelbusch's soda sterilizer for instruments costs some fifty dollars, book muslin costs about a dollar and a half for the piece (forty yards), tricot some three dollars a piece, and moss (*Sphagna cymbifolia*) about twenty-five dollars a bale of 220·5 pounds. The translator also refers to the fact that the chief obstacle to the efficient carrying out of aseptic methods is the frequent change of house surgeons.

Dr. Schimmelbusch describes the modes of infection, of disinfection, and of sterilization; the preparation of dressings, sponges, sutures, and ligatures; the aseptic drainage of wounds; the aseptic use of hypodermic and aspirating needles and of catheters and bougies; the details of the operating and sick rooms; and the improvisation of aseptic dressings for emergencies.

The author and the translator have given the profession a very useful and reliable guide to the details of aseptic surgery.

A Manual of Bandaging. Adapted for Self-instruction. By C. Henri Leonard, A. M., M. D., Professor of the Medical and Surgical Diseases of Women, etc. With One Hundred and Thirty-nine Engravings. Sixth Edition. Detroit: The Illustrated Medical Journal Co., 1895. Pp. 5 to 159. [Price, $1.50.]

In the sixth edition of this well-known work the author has not found it necessary to make any additions. It is a satisfactory, though not exhaustive, manual that will be found very useful by students and practitioners.

BOOKS, ETC., RECEIVED.

A Text-book of Chemistry. Intended for the Use of Pharmaceutical and Medical Students. By Samuel P. Sadtler, Ph. D., F. C. S., Professor of Chemistry in the Philadelphia College of Pharmacy, etc., and Henry Trimble, Ph. M., Professor of Analytical Chemistry in the Philadelphia College of Pharmacy. Philadelphia: J. B. Lippincott Company, 1895. Pp. 2 to 950. [Price, $5.]

The Elements of Pathological Histology; with Special Reference to Practical Methods. By Dr. Anton Weichselbaum, Professor of Pathological Anatomy, and Director of the Institute of Pathological Anatomy in the University of Vienna. Translated by W. R. Dawson, M. D. (Dub.), Demonstrator of Pathology in the Royal College of Surgeons, Ireland, etc. With Eight Plates and a large Number of Illustrations in the Text, some of which are Colored. London and New York: Longmans, Green, & Co., 1895. Pp. xv–7 to 456.

Therapeutic Suggestion in Psychopathia Sexualis (Pathological Manifestations of the Sexual Sense), with Special Reference to Contrary Sexual Instinct. By Dr. A. von Schrenck-Notzing, Practicing Physician in Munich. Authorized Translation from the German by Charles Gilbert Chaddock, M. D., Professor of Diseases of the Nervous System, etc. Philadelphia: F. A. Davis Company, 1895. Pp. xix–320. [Price, $2.50.]

The Aseptic Treatment of Wounds. By Dr. C. Schimmelbusch, Privat-docent and Assistant Surgeon in Professor von Bergmann's University Clinic at Berlin. With a Preface by Professor von Bergmann. Translated from the Second German Edition by Alfred Theodore Rake, M. B., B. S. (Lond.), F. R. C. S. (Eng.), Registrar and Pathologist to the East London Hospital for Children, etc. London: H. K. Lewis, 1894. Pp. xvi–250. [Price, 5*s.*]

The Anatomy of the Nasal Cavity and its Accessory Sinuses. An Atlas for Practitioners and Students. By Dr. A. Onodi, Lecturer on Rhino-laryngology in the University of Budapest. Translated from the Second Edition by St. Clair Thomson, M. D. Lond., F. R. C. S. Eng., Member of the Royal College of Physicians, London. London: H. K. Lewis, 1895. [Price, 6*s.*]

A Manual of Bandaging. Adapted for Self-instruction. By C. Henri Leonard, A. M., M. D., Professor of the Medical and Surgical Diseases of Women, etc. With One Hundred and Thirty-nine Engravings. Sixth Edition. Detroit: The Illustrated Medical Journal Co., 1895. Pp. 5 to 159. [Price, $1.50.]

Handbuch der physiologischen Optik. Von H. von Helmholtz. Zweite umgearbeitete Auflage. Mit zahlreichen in den Text eingedruckten Holzschnitten. Neunte und zehnte Lieferung. Hamburg und Leipzig: Leopold Voss, 1894. Pp. 641 to 800.

Twenty-fourth Annual Report of the Middletown State Homœopathic Hospital at Middletown, N. Y.

First Annual Report of the Hospital and Board of Health, Department of Kansas City, Mo., for the Calendar Year ending December 31, 1894.

The Clinical Divisions of Pneumonia. By Andrew H. Smith, M. D. Clinical Lecture delivered at the New York Postgraduate Medical School.

A New Wool-test for the Detection of Color-blindness. By William Thomson, M. D., Philadelphia. [Reprinted from the *Medical News.*]

The Practical Examination of Railway Employees as to Color-blindness, Acuteness of Vision, and Hearing. By William Thomson, M. D. [Reprinted from the *Medical News.*]

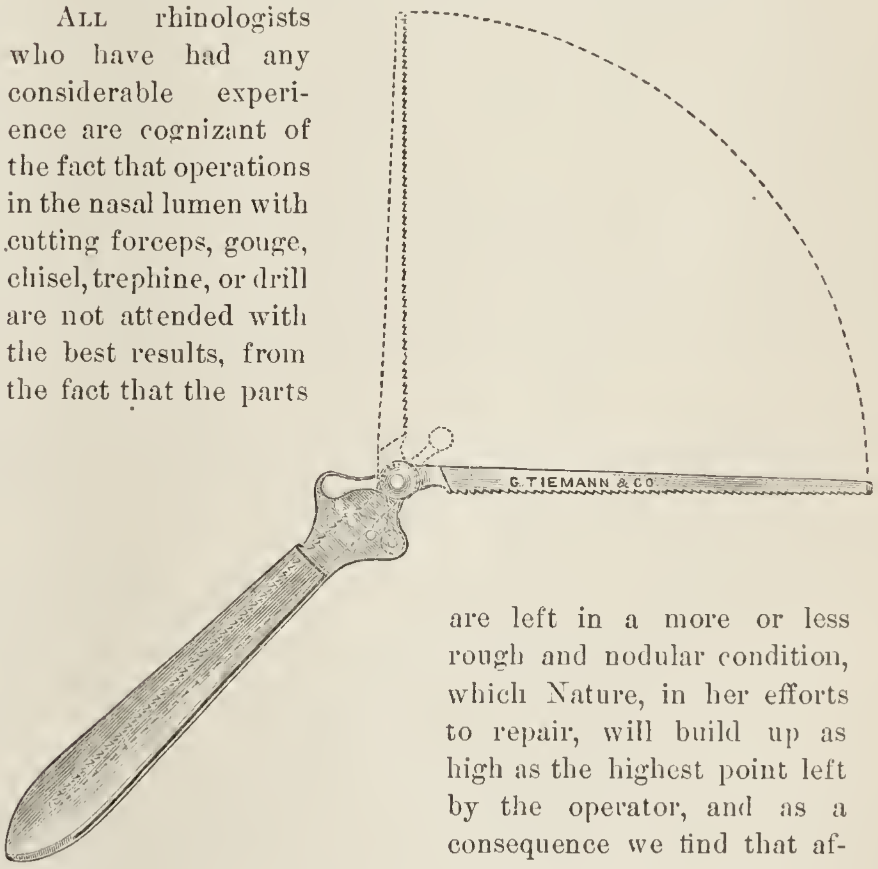
Ripening of Immature Cataract by Direct Trituration. By Boerne Bettman, M. D., Chicago. [Reprinted from the *Annals of Ophthalmology and Otology.*]

New Inventions, etc.

A NEW ADJUSTABLE NASAL SAW.

By Herman L. Armstrong, M. D.,

SURGEON TO THE CENTRAL THROAT HOSPITAL, BROOKLYN.



All rhinologists who have had any considerable experience are cognizant of the fact that operations in the nasal lumen with cutting forceps, gouge, chisel, trephine, or drill are not attended with the best results, from the fact that the parts are left in a more or less rough and nodular condition, which Nature, in her efforts to repair, will build up as high as the highest point left by the operator, and as a consequence we find that after the parts are thoroughly healed we have no improvement in the original condition.

It is needless for me to eulogize the nasal saw, as all rhinologists recognize this instrument as being the only one by which exostoses or enchondromatous growths can be removed and followed by a perfect result.

Feeling the need of a saw that would answer all requirements, I have devised the one here illustrated; it can be adjusted at five different angles, and is readily converted into an instrument either with straight, up-cut, or down-cut blade; it is thoroughly aseptic, and may be folded and placed in a bag with other instruments without danger of being dulled or injuring the others. It is made in a neat, compact, and durable form by George Tiemann & Co., New York.

Miscellany.

The Proposed Indian Pasteur Institute and Vivisection.—The February number of the *Indian Medical Gazette* contains a very interesting article on this subject by Surgeon-Colonel Harvey, in regard to the action of the Bengal Branch of the Antivivisection Society in opposing the proposed Pasteur Institute for India. Dr. Harvey sums up the arguments for and against experiments on living animals, and hopes that doubters may be convinced that such experiments are not only justifiable but necessary. The question, he says, may be looked at from two sides, the ethical and the scientific, and may be arranged in two divisions: Vivisection proper, which alone involves cutting operations on living animals, causing their death; and experiments on living animals without cutting operations, involving temporary pain or discomfort only. These, says Dr. Harvey, are all bracketed together under the head of vivisection by the opponents of experimental research, who base their opposition on the following grounds: 1. Animals have rights as well as men, and one of these rights is to be saved from cruelty. 2. The experiments lead to little or no useful or practical results. 3. Even if they did, the cruelty which they involve makes them unjustifiable, since man has no moral right to inflict cruelty for his own advantage. 4. The experiments have a demoralizing effect on those who perform them.

The main arguments on the scientific side are: 1. The experiments are necessary for the advancement of knowledge, and this necessity is recognized almost without exception by the medical profession. 2. They have, in fact, "been of inestimable service to man and to the lower animals, and the continuation and extension of such investigation are essential to the progress of knowledge, the relief of suffering, and the saving of life." 3. They are conducted under Parliamentary restriction, without cruelty, and with the least possible suffering. 4. The statements of the antivivisection party are inaccurate, exaggerated, and misleading. 5. Suffering and sacrifice are facts in Nature which no declamation can eliminate, and the rights of man are superior to those of animals. 6. The experiments have no demoralizing effect on those who perform them.

We have to deal, says Dr. Harvey, with questions of fact, with a matter of opinion, and, above all, with the meaning of words. Vivisection implies the dissection of live animals without anæsthetics. The term, he thinks, should not be applied to experiments performed under the influence of chloroform; it does not apply to the killing of animals by poison or by snake-bite, and still less to the feeding of them with particular varieties of food or to inoculating them with disease germs, and, although the antivivisection party objects to all these, they have no right to speak of them as vivisection. Cruelty, too, is another word which they have vested with an entirely new meaning, and much of the bitterness of the controversy has been due to confusion arising from this difference in meaning.

According to the antivivisectionist, as represented by Miss Power Cobbe, says the author, cruelty is "the voluntary infliction by a moral free agent on a sentient being of severe pain, not beneficent to the sufferer, and not authorized by justice." It is obvious that, according as we use the word in one sense or the other, both parties are right, for while the experimenters do not experiment without good reason, and have no disposition to give unnecessary pain, the experiments are certainly not beneficent to the sufferers, although they are often of the utmost benefit to men and to animals as a whole. On the strength of this novel definition—entirely unknown to the English language—the antivivisectors denounce the experiments as atrocious cruelty, diabolical practices, hellish actions, and so on, brand the experimenters as monsters, hold them up by name to the execration of mankind, send anonymous abuse to their wives—in short, forget the courtesies of controversy and the common decencies of life.

Miss Cobbe, he continues, gives a clever classification of subjectively defined cruelty into ignorant, careless, wanton, malignant, and interested cruelty; in "wanton cruelty the person causing pain for the sake of the emotional excitement which he derives from the spectacle," in "malignant cruelty the cruel person causing pain from hatred of his victim, and taking direct pleasure in his pain," in "interested cruelty, the cruel person causing pain, with or without reluctance, for ulterior purposes of his own or the benefit of third parties," and she considers interested cruelty "the most dangerous." It is quite clear, then, says Dr. Harvey, that the assertions of atrocious cruelty so often made by the antivivisection party require to be received in a special sense, and that they apply the word cruelty to the experiments by a new standard which they do not use for the rest of the world. It is of the greatest importance to keep this constantly in mind.

Dr. Harvey answers the main arguments in their order, and first with regard to the rights of animals, he says, the physiologist and the physician are quite willing to accept the dictum that animals have rights, and that to be saved from cruelty is one of them. But man has rights as well as animals, and his rights are paramount when a good reason can be given for subordinating their rights to his. With regard to utility, it is commonly contended that the experiments lead to few or no useful results, that they are confusing and misleading, hindering and not helping the advance of knowledge. It is surely for the medical profession, says the author, to determine whether they have been helped by such experiments, and their testimony must outweigh that of women and clergymen not specially trained in physiological or surgical knowledge. The discoveries of the circulation of the blood, the physiology of respiration, the functions of the spinal nerves, of the liver, and of the thyreoid gland, the localization of the motor areas in the brain, the foundations of modern physiological knowledge, says Dr. Harvey, have all been founded on the Baconian principle, "Interrogate Nature." By recent improvements, also, many operations have been to a great extent freed from risk and new ones rendered possible. But for recent experiments on monkeys no surgeon could have diagnosticated accurately the site of a tumor in the brain. By the sacrifice of a few sheep, pigs, and fowls, anthrax, swine-fever, and chicken cholera have been brought under control, to the enormous benefit of the animals themselves and to the great profit of the farmer. It is stated, he says, although he does not vouch for the figures, that the mortality from anthrax has been reduced from eighteen to one per cent., and that about 3,500,000 sheep and 400,000 cattle have been inoculated against the disease in France alone, and that the money value of those saved is about seven millions of francs. Dr. Harvey gives this as an example of the utility of experiments, a utility which is now admitted by the antivivisectionists themselves. Miss Cobbe, says Dr.

Harvey, defines cruelty as the infliction of severe pain not beneficial to the sufferer, and she absolutely refuses to admit that it can be justified by utility. "If vivisectors," she says, "have already made, or shall hereafter make, discoveries tending directly and importantly to relieve our bodily pains, even then would vivisection, I ask, stand justified? Not so, my friend, assuredly." She is here clearly committed to the statement, says the author, that the infliction of severe pain not beneficent to the sufferer can not be justified on the plea of utility, and if this rule is true it must be universally applied, and leads to some strange conclusions. Man constantly inflicts severe and unnecessary pain not beneficial to the sufferer for his own convenience and sport. For the sake of pecuniary profit many cruelties are committed, such as the skinning of animals alive to get the fur in better condition, the injection of air under the skin, etc. The vagaries of fashion and the personal vanities of men and women are the cause of much pain. For the gratification of his appetite man does not hesitate to unsex fowls, subject innumerable geese to grave disease, boil lobsters alive, and do other acts quite as "cruel" as any done by the physiologist. If the experimenters are guilty of gross cruelty, says Dr. Harvey, the fact that others are also guilty would not excuse them; the point to be emphasized is, that, according to the antivivisection definition, they are on a level with the rest of mankind.

With regard to the supposed "demoralizing" effect of the experiments, says the author, it is much insisted on in the writings of the antivivisection party. They have supposed that a man who does things so cruel must necessarily become thoroughly heartless, altogether inhuman. There are no keener fishermen than the clergy, he remarks, but we do not find them demoralized or converted into monsters. The author does not deny that many cruelties have been performed by experimenters; cruel men may exist in the medical profession as elsewhere, and should be dealt with in the same way.

Dr. Harvey remarks that he has waded through a mass of the literature of the antivivisection party, and the perusal, he says, makes him understand how the agitation is created and maintained. The writer's imagination riots in harrowing descriptions, and ladies ignorant of physiology, ignorant of science, are horrified accordingly. The writers themselves are to some extent self-deceived. They "shriek," as we have seen, over the "agonies" of the frog, while justifying the torture of the suffering salmon; they eat their veal and *foie gras* contentedly, and bemoan the woes of the rabbit used for the advancement of learning, while ignoring the fact that thousands of these rabbits are killed in gins and snares. It seems to the author that, from a careful perusal of this literature, the greater part of the opposition to experiments is founded on ignorance, on taking for granted as truth untrue or grossly exaggerated statements. Much of it, he says, is sentimental, much unreal.

Dr. Harvey hopes that what he has said will be sufficient to convince the public that scientific research is necessary to the advancement of knowledge, that it involves no cruelty, properly so called, and very much less pain and suffering than many other things sanctioned by reason and by the universal custom of mankind; that it is guarded from abuse by sufficient legal restrictions; and that sensitive and humane men may lend it their moral and material support with the clearest of consciences. A branch of the Pasteur Institute is needed in India, he says, not only in the interests of those bitten by rabid animals or infected with diphtheria, but for the investigation of the Indian diseases of men, animals, and plants.

The Treatment of Metrorrhagia.—The *Presse médicale* for March 9th contains an article on this subject in which the writer remarks that there is no practitioner who has not often had to combat rebellious hæmorrhages dependent upon the alterations of the uterine mucous membrane in cases of simple endometritis as well as in those of intraparietal or submucous fibroma.

Curettage, which is too often employed without definite indications, is frequently inefficacious, he says, and, if numerous methods of treatment have been successively proposed in these cases, we can but see in that fact an evident proof of their too frequent inefficacy.

Among the hæmostatics lately experimented with it seems that antipyrine should have some importance attached to its employment; it has, in addition, the great advantage of being manifestly antiseptic. Chouppe, Huchard, and Chéron have used antipyrine internally with success for uterine hæmorrhage. It is, however, by topical application that it appears to give the best results. In order to render the local applications easier, M. Labadie-Lagrave conceived the idea of associating antipyrine with a substance dissolving at a relatively low temperature, and for this purpose he selected salol because of its antiseptic properties and its liquefaction at 109·2°. The method is very simple, and the liquid may be prepared at a moment's notice. To do this a test-tube one third filled with equal parts of salol and antipyrine should be heated over an alcohol lamp; fusion is produced in two or three minutes, and a slightly brownish liquid is obtained, which, however, has the disadvantage of rapidly becoming solidified when withdrawn from the action of heat for a few moments, and in order to retard solidification the tube should be subjected to heat until the mixture becomes of a distinctly brown color; the product thus obtained will remain liquid for a sufficient length of time.

To introduce this liquid into the uterine cavity a slender flexible rod is employed, at the extremity of which is a small tampon of absorbent cotton saturated with the liquid, which has been brought to the proper temperature for the uterus, and this is introduced into the uterine cavity without too much pressure, and the entire cavity painted. Two or three successive applications are made according to the gravity of the hæmorrhage; then a tampon of cotton saturated with glycerin and creosote is left in the vagina, and the patient is advised to remain in bed.

These applications, says the author, are not at all painful and have never provoked the least accident. Immediately after the paintings the hæmorrhage is arrested, the patient scarcely losing more than a few drops of blood during the day, and the day after there is no trace of hæmorrhage. It is rare, also, to have to make another application after the first day.

The Proper Care of Artificial Eyes.—In the *Presse médicale* for March 2d M. A. Trousseau publishes an article on this subject in which he says that the proper conditions under which a person may wear an artificial eye relate to the condition of the cavity and the quality of the eye. The cavity should be healthy, smooth, free from all adhesions or fungosities, and containing a stump of sufficient size and having perfect mobility. The artificial eye should be polished, clear, and exempt from all roughness, with smooth, rounded edges. It should correspond to the size of the cavity, and should not prevent the closing of the eyelids. It should always be in a proper aseptic condition, so as not to become an agent of irritation or of infection for the conjunctiva.

Accidents are due, the greater part of the time, says the author, to the operator limiting himself to enucleation and the curing of the wound, and then allowing the patient to go to an optician without further advice. Having allowed him to wear an artificial eye, beginning three or four weeks after the operation, when the cavity is no longer irritated and contains no secretion, the physician should show the patient the proper care against further annoyance.

The eye should never be worn for twenty-four consecutive hours, but should be removed every night and placed in a bowl containing a four-per-cent. tepid solution of boric acid after having been carefully wiped off with sterilized absorbent cotton. If it is put into too cold a solution, it will crack and even break in two. In the morning it should not be replaced in the cavity unless it is in a perfectly aseptic condition and free from all roughness, and the hands must be absolutely clean while handling the eye. If it becomes worn and rough, a new one should be used, for any irregularities cause irritation and render cleansing less easy. It is well, says M. Trousseau, to have another eye in reserve in a sterilized bottle wrapped in layers of cotton, also sterilized. On an average, the same eye can not be worn for more than from four to six months consecutively.

The patient should learn to take out and put in the eye himself; to put it in, the upper eyelid is raised and the large extremity of the eye is introduced under the eyelid and adjusted in such a manner that the long axis is horizontal; then the lower eyelid is pulled down so that the edge of the eye will finally settle in the *cul-de-sac*. To remove the eye, the lower eyelid must be pulled down and turned over, and the head of a pin, or a little hook made for the purpose, inserted under the eye, which immediately loosens it, and the eye falls out easily.

The cavity should be washed out every night and morning with a tepid solution of boric acid, which should be allowed to remain in contact with the spot for a few minutes. The patient can do this easily by throwing his head back.

If the conjunctiva is irritated or painful, the eye must not be worn until all trace of irritation has disappeared, and during this time the applications of boric-acid water should be continued. The cavity, also, must be protected with a tampon of sterilized gauze covered with absorbent cotton and held in place with a bandage. If there is a moderate secretion in the cavity, the same precautions must be taken and the boric-acid applications replaced by those of a solution of corrosive sublimate in the proportion of one in four thousand. If the secretion is abundant, it may be well to cauterize the entire surface with a two-per-cent. solution of nitrate of silver. This should be repeated every day or two, according to the abundance of the secretion, and continued until the mucous membrane is dry.

If there are adhesions, surgical interference may be resorted to, and if they are considerable, the cavity should be closed by suturing the eyelids. If there are exuberant granulations in the cavity, they should be destroyed directly with nitrate of silver or with the thermo-cautery.

The Treatment of Boils with Colchicum.—In the *Lyon médical* for March 3d there is an abstract of an article from the *Journal de médecine et de chirurgie pratiques* for February 10th, in which M. Brocq says that he has observed that among gouty persons who are attacked with successive crops of boils, but who have neither diabetes nor albuminuria, the extract of colchicum in quantities of from half a grain to two thirds of a grain a day gives favorable and sometimes surprising results, as the following case will show: The patient, a man forty years old, was gouty and for several months had suffered from boils, against which all treatment, whether external or internal, had failed. M. Brocq administered in this case from a third of a grain to half a grain of the extract of colchicum daily, and the effect was surprising. From the fifth day the growth of the furuncles was arrested and no new ones appeared. Fifteen days later the use of the extract was stopped and the furuncles returned. The colchicum was again given to the patient, and the affection was rapidly checked. These experiments were repeated at different times until the patient, perfectly satisfied of the power of colchicum, made up his mind to continue its use for a sufficient length of time, and then gradually give it up. He is now completely cured. As a local treatment M. Brocq advises daily applications of a strong tincture of camphor; the furuncles, also, should be covered with pieces of Vidal's red plaster.

The Treatment of Penetrating Wounds of the Lung.—In the *Gazette hebdomadaire de médecine et de chirurgie* for March 2d there is an abstract of an article by M. Huguet and M. Peraire on this subject which appeared in the *Revue de chirurgie* for 1895. This article, says the writer, is based on three personal observations and leads to the following conclusions: 1. The absolute necessity of treating the wounded person on the spot; the serious consequences resulting from the jolting of the conveyance, no matter how short the distance, render immediate treatment imperative. If the patient has to be driven some distance, the jolting of the carriage will cause hæmoptysis, which may cause death in a short time. 2. The condition of syncope, favoring hæmostasis, should, within reasonable limits, not be interfered with. Subcutaneous injections of ether must, therefore, be used but sparingly unless there is too much depression. In these cases caffeine is especially indicated, and injections of artificial serum should be resorted to. 3. The treatment of wounds of the lung by ordinary means must be, in many cases, insufficient if the wounded person is not subjected at once to an immobility as absolute as possible, which, in itself, says the author, may assure success. 4. The treatment by absolute immobility and immobilization of the thorax does not exclude other procedures when they can be effected without interfering with the patient's immobility. 5. Generally, in cases of hæmatothorax following a lesion of the large blood-vessels, the treatment should not be active. The symptoms, and especially the complications, must guide the physician in coming to a determination; thoracentesis should not be practiced unless the effusion becomes too considerable and symptoms of dyspnœa become serious. 6. The practice of carefully cleansing the patient as soon as the wound has been dressed is to be avoided in every case of penetrating wound of the chest; we should content ourselves with what is strictly necessary, to the exclusion of every occasion of shock.

An Antitoxine for Syphilis.—Surgeon J. Duncan Menzies, of the British Navy, writes to the *British Medical Journal* for March 2d that the satisfactory results of the antitoxine treatment of diphtheria encourage one to hope for a still more brilliant advance in scientific medicine. He refers to the possibility of obtaining a seropathic antitoxine for syphilis. The horse, he says, is known to be subject to a constitutional affection having a marked likeness to the human disease, without, perhaps, a real identity. Again, human syphilis, he says, is incapable of being transmitted to the equine genus. Can we regard this last fact, he asks, as showing a species of antagonism between the two diseases? The bacteriology of equine venereal disease has not as yet, he believes, been worked out. It would be instructive, he thinks, to compare and endeavor to form an estimate of the bacteriological strength and antagonism of the two viruses, if possible. This discovery, he says, if properly substantiated, might lead to the perfected therapeutic syphilotoxine.

Brief Local Anæsthesia, says the *Practitioner*, can be produced by spraying with a mixture of half a drachm of menthol, five drachms of chloroform, and an ounce of ether. The anæsthesia lasts for about five minutes.

THE NEW YORK MEDICAL JOURNAL, April 6, 1895.

Original Communications.

ULCERS OF THE CORNEA.

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Ulcers are solutions of continuity produced by internal or external agencies. Their origin lies in a superficially disposed infiltration; the surrounding tissue is cloudy, the overlying epithelial cells desquamate, the diseased portion of the cornea breaks down, and an excavation is formed. This description represents the inception of a corneal ulcer. In addition to the disintegration of the most necrotic area, the cloudiness before mentioned frequently increases, accompanied by advancing tissue destruction. The latter may penetrate deeply, proceed superficially in one or all directions, or may assume a serpiginous character. In the first or progressive stage the boundaries are infiltrated and present a grayish appearance, the edges are jagged, and the base uneven. Assuming a typical case, the exudation is cast off and the neighboring infiltration is absorbed, producing a clean ulcer. The cavity is now larger, but on the other hand it is transparent.

This describes the second or regressive stage of an extremely favorable and, generally speaking, of an asthenic case. In the third stage, that of cicatrization, the cavity becomes filled with a reparative exudation. Blood-vessels visible to the naked eye may course from the limbus to the ulcer; sometimes these capillaries are so small as to be invisible without the assistance of a magnifying lens; again, they may be absent, and healing takes place through the agency of the lymphatic channels. The newly formed tissue is cicatricial in character; healing is complete when the cavity is filled and the epithelium restored. In clean ulcers it is occasionally observed that the cellular covering dips down into the excavation, so that the normal reflex is obtainable; the cavity then fills up under the epithelium. This somewhat rare condition must be borne in mind. Rather often the ulcer does not completely refill, the cells cover this tissue *in statu quo*, and a facet results; conversely, in other cases the cicatrix protrudes beyond the surface of the cornea. This is due to the intra-ocular pressure against the thinned cornea, producing a keratectasia. Before discussing the untoward results of corneal ulcers, let us consider briefly the histology of inflammation and reparation. Cohnheim advanced the view that the motile cells of Recklinghausen, which are in reality leucocytes, produced the inflammatory phenomena; others, Stricker in particular, maintained that the fixed corneal corpuscles were the agents. I am personally of the opinion that the former is correct. In regard to the reparation of the ulcerative process, the epithelium is formed from that surrounding the excavation, and the connective-tissue growth is an exudation metamorphosis. We are therefore forced to the conclusion that the white blood-cells in physiological proportions are, *cæteris paribus*, necessary adjuvants to healing, while in excessive numbers they become inflammatory factors. The clearing of corneal cicatrices takes place in the following manner: Through some form of metabolism the new connective tissue disappears and the corneal substance replaces it. The membrane of Bowman is never restored; its absence *per se* does not interfere in any manner whatsoever with vision. The return of the corneal stroma is effected by a caryocinesis of the stellate fixed cells, with their subsequent development. In this manner, in my opinion, do both corneal constituents engage in reparation, while but one produces inflammation. As a result of increasing necrosis, perforation is likely to occur; this casualty may be induced by some violent action on the part of the patient, such as sneezing, coughing, etc. Should the perforation be small and be situated over the iris, the latter will become attached to the posterior part of the opening and incorporate itself in the cicatrix (synechia anterior). If the opening be larger, the iris will protrude and form a cystoid mass (hernia iridis), which by the contraction of the cicatrix will flatten and become denser. A pinhead protrusion is called myiocephalon (*Fliegenkopf*). In severer forms there may occur a total prolapse of the iris. These hernial conditions produce ectatic corneæ and give rise to staphylomata.

Small herniæ recently formed possess the normal iris color; later they present a grayish appearance on account of exudation. When the iris has been rarefied through tension, the retinal pigment causes the prolapse to appear black. Should the pathological opening be situated over the pupil, the iris can not be included; hence the anterior chamber becomes obliterated and the lens lies at the site of the perforation. There is a tendency for the same to close by a new tissue formation which emanates from the edges of the wound. It sometimes happens that this thin membranous growth is ruptured by carelessness on the part of the patient or through internal pressure, and a permanent fistula results; the cornea then flattens, the globe becomes soft, and the eye is lost from a general disintegration; conversely, it may temporarily close. The lens, from being in contact with the perforation, may, and often does, develop a capsular cataract. Increased tension manifests itself and ruptures the newly formed plug. This alternating condition may persist for some length of time until panophthalmitis supervenes, and is followed by phthisis bulbi. Perforation may be preceded by a hernia of Descemet's membrane (keratocele), which becomes incorporated in the cicatrix, and, as a clear vesicle, is seen projecting above the surface of the cornea surrounded by white scar tissue. Keratocele may also occur independently, however. Among the fortuities dependent upon perforation, I may mention subluxation of the lens and also intra-ocular hæmorrhage. In the former case the passage of the crystalline to the anterior part of the aqueous chamber stretches the zonula and some of the fibers may be lacerated. Should the corneal fenestration be sufficiently large, the lens may be expelled. Hæmorrhage occurs in cases in which perforation takes place suddenly, and where increased tension has previously existed. The sudden removal of pressure permits an increased quantity of blood to enter the vessels, producing rupture of the same. A vascular degeneration has usually pre-existed; both these conditions are regularly present in glaucomatous and staphylomatous eyes. The hæmorrhage may extrude the ocular contents, and likewise may be so profuse as to imperil the life of the patient.

Concomitant Lesions.—From the beginning of a keratitis, circumcorneal injection is manifest. If the ciliary body be moderately affected, there is seen a pinkish circumcorneal halo. With iritis the congestion is much darker and more intense; very often a marked conjunctival injection coexists. In very severe forms of ulcer there is visible chemosis of the conjunctiva, and even œdema of the lids. A symptom which has frequently attracted my attention—viz., a dilated pupil and a deep anterior chamber, with but slight inflammatory symptoms and no deposits upon Descemet's endothelium—is a very constant complication of ulcer. The subjective symptoms in mild cases are referable to the corneal lesion; in severer forms there is great pain. I have termed this condition simple serous cyclitis. The tension generally is slightly increased. When iritis is present, in addition to the vascular congestion before mentioned, the pupil is irregular and contracted, the iris dull, often swollen and discolored, and, after a variable period of duration, capsular adhesions are formed. The cornea also becomes hazy and the aqueous turbid.

It is a matter of certainty, established by microscopical examination, that in iritis the ciliary body is likewise involved; but, when the changes in the latter are very slight, they become masked by the iritis. Iridocyclitis is said to exist when, in addition to the iris symptoms, the following are present:

1. Ciliary tenderness.

2. Opacities on the posterior surface of the cornea, and deepening of the filtration angle; the latter, when associated with an immobile pupil, indicates the existence of total posterior synechia.

3. Heightened inflammatory symptoms, with œdema of the upper lid.

4. Great disturbance in vision due to opacities in the vitreous. Tension either plus or minus. (The limitation of space prevents my discussing this part of the subject *in extenso.*)

Hypopyon frequently complicates ulcer; it is derived at times from the cornea, though more often it is of uveal origin; on the other hand, however, it may arise from both sources. The exudation consists principally of pus-cells and fibrino-plastic material. Microscopically, a line is sometimes seen coursing from the corneal suppuration to the anterior chamber. In the pus, uveal pigment is nearly always found, establishing in these instances its intra-ocular origin. The exudation may be fluid or thick; in the latter state it organizes, and may occlude the pupil. In favorable cases it escapes through the ligamentum pectinatum and the lymph channels. It is a regular accompaniment of ulcus septicum or its prototype, abscess of the cornea, and occurs without the existence of suppurative keratitis in many cases of iridocyclitis. The quantity of pus varies; it may be almost imperceptible, or, on the other hand, may fill the anterior chamber.

The following data will enable a correct diagnosis to be made through a facile means of distinction: If the corneal surface is dull without a loss of substance, there is present either an infiltration or an abscess; with a denudation it is a progressive ulcer. If the surface is glistening and the reflex similar to the surrounding normal cornea, we are regarding an old cicatrix. If there is a loss of tissue without the normal reflex, there is a clean ulcer. If the mirrorlike reflex is present, we observe a healed corneal facet, or an ulcer filling under the epithelium. For corroboration, fluoresceine may be employed; a few drops of an alkaline solution will produce a play of colors varying from Nile green to canary yellow. A denuded spot will be pigmented by the fluid; the flow of tears or an application of water will remove this subsequently.

Ulcers are divisible into two great classes—primary and secondary. The former arise in the healthy cornea, and the latter are caused by an inflammation of some neighboring membrane. The vast majority of primary ulcers are traumatic in character, accepting it in a wide sense. Inverted isolated cilia, trichiasis, entropion, growths on the free border of the lid, calcareous deposits on the conjunctiva, particles of dust in the *cul-de-sac*, eczema of the lid, are all extraneous causes. Malnutrition, with consequent hæmatic changes, frequently acts as an exciting factor. Introduction of bacteria from the mouth constitutes an important causative element. This is particularly true of dispensary patients, in whose oral cavities the bacteria of pyorrhœa alveolaris and carious teeth find excellent culture media.

Of the secondary ulcers, we find that phlyctænular, lacrymal, muco-purulent, diphtheritic, and gonorrhœal conjunctivitis, and trachoma are the great excitants. Suppurative keratitis complicates the exanthemata, and is a direct result of conjunctival inflammation. A corneal abscess, opening anteriorly, constitutes a variety of ulcer. In regard to the causes of suppuration we seek an explanation in bacteria. The principal bacterium of localized pus formation is the staphylococcus, of which there are several distinct forms, among others the pyogenes aureus, citreus, albus, flavus, cereus, etc. In every conjunctivitis we find staphylococci; the virulence of the same depends upon their number and also upon the nutritive fields. With the slightest denudation of the corneal epithelium, these bacteria enter and produce suppuration. Bacilli, after perforating wounds from steel blades, etc., and various forms of fungi—such as the *Aspergillus glaucus*, after an injury by a beard of oats, and an undetermined species of hyphomycetes following a traumatism by a pear—have been discovered in a suppurating cornea. As a result of my own investigations, I have found that the *Spirochæta denticola* and the *Leptothrix buccalis* have likewise produced purulent keratitis and sequelæ. In the vast majority of cases the staphylococcus is the only bacterium in evidence. The working classes and old people in general suffer to a great extent from dacryocystitis, with its accompanying conjunctivitis, and also with non-lacrymal conjunctival catarrhal inflammations. Thus a cinder or a particle of dust which may lodge on, or rather in, the cornea, permits bacteria in this class of cases to enter, and subsequently an ulcer is formed. These foreign bodies may cause only momentary inconvenience, as a sudden flow of tears will suffice to remove them, if very superficial, and immediately afterward the occurrence is forgotten. Thus can we explain the genesis of many so-called idiopathic ulcers.

During the past three years my attention has been particularly called to certain ulcers which occurred in adults where there had been no antecedent conjunctivitis and no traumatism, as far as the patients—who in this particular citation happened to be more intelligent than the average—could recall. From careful interrogation I obtained the information that they used the Harlem and East Rivers as places for natation, and it at once became evident to me that the *raison d'être* of the infection had been explained. This method of inoculation is not so very uncommon, and when we consider the morphology of sewage excreta, it need not create the least astonishment.

Of the bacteriology of autogenous ulcers—those dependent upon hæmic changes—an analogy can well be drawn between them and acne pustules. Bacteria are to be found in the vascular system, but are innocuous when there are a sufficient number of leucocytes. When phagocytosis can no longer be brought to bear, the pyogenic bacteria manifest their potency by producing suppuration, and the cornea suffers as well as other tissues. In regard to the gross pathology of ulcers, phlyctænulæ of the cornea or phlyctænular keratitis, with their evolution, demand special study. These elevations average from the size of a pinhead to a millet seed; they are usually of a grayish color, and may be situated on any part of the cornea, but are usually more or less marginal. They are solid bodies and consist of an aggregation of lymphoid cells between Bowman's membrane and the epithelium; the smaller ones are completely absorbed at the end of two or three days. The larger disintegrate in the following manner: A minute denudation appears at the apex of the phlyctænula; this continues to increase until the corneal surface is reached; the epithelium may now become restored without a macula resulting, or the process may continue and an ulcer be formed. It is frequently not until this stage is reached that we see the patient.

I described at the beginning of this essay the course of a *typical* ulcer. As usually seen, however, the picture is different; the stage of progression continues, were we to neglect treatment, until the cornea perforates or sloughs entirely away.

The reparative process is partly indicated by the extension of blood-vessels from the limbus; these are most often found in the superior layers of the epithelium (but may be deeper), their outlet being the ulcer; this heals on one side and advances serpiginously; the vessels continue their progress until in many cases, particularly where there have been several efflorescences, the cornea is covered by this vascular formation. After a cure has been effected they become depleted, but their sheaths can always be seen as faint striæ. This is the so-called vascular fasciculus.

Herpes corneæ (febrilis, or zoster) occasions ulcers through the rupture of the vesicles. They spread superficially, but do not penetrate deeply. The tendency is to produce an arborescent figure, to which condition has been applied the term keratitis dendritica.

Ulcus rodens runs a characteristic course. It commences near the margin of the cornea, usually on the superior border; the edges are undermined and heavily infiltrated; the inflammatory symptoms are well marked. The ulcer subsequently cleanses itself, vessels form, and cicatrization commences. Suddenly a relapse occurs, the ulcer extends with a recurrence of symptoms, and ultimately the entire cornea has become cicatricial. This disease occurs principally in adults, and frequently involves both corneæ, either simultaneously or successively; perforation is rare. The three forms described have given rise to the designation of serpiginous ulcers. Small marginal ulcerations often occur without ascertainable cause. Ulcers from conjunctivitis are either crescentic or irregularly round; they are usually more or less peripheral. In gonorrhœal and diphtheritic conjunctival inflammations ulceration generally commences inferiorly and spreads rapidly, most frequently with the sequela of panophthalmitis.

Traumatism furnishes a large variety of ulcers; some are small and superficial, healing rapidly under favorable conditions, and are uniformly situated in the palpebral fissure. Another form is very malignant: the edges and base of the wound are yellow, and hypopyon is regularly present. Their course is isologous with that of abscess—in fact, they are small superficial pus foci which have opened anteriorly; they have been described by different observers as ulcus serpens, ulcus septicum, and hypopyon keratitis. The process advances rapidly and the deeper structures become affected synchronously. The disease is distinctly sthenic in character, and the tendency to perforate is marked. From the appearance and rapid growth of the lesion one would assume a more malignant bacterium to be in evidence; but, as culture tests refute this view, we must conclude that the virulence of the staphylococcus depends largely upon the soil. An abscess of the cornea is not circumscribed; it is diffuse on account of the arrangement of the corneal stroma, in the interstices of which the pus is to be found. The name onyx has been given to an interlamellar pus focus.

A very destructive genus is the "ring ulcer." This consists of a purulent groove surrounding the cornea, with the involvement of the adjacent structures. It often follows a ciliary wound, but may occur without a definite history of traumatism. The condition is absolutely incurable. In glaucomatous and staphylomatous eyes ulcers distinguished by their rapid progress and incurability are seen to occur. The eyes are generally lost through extension of the inflammation. Knowing that the underlying cause is an ocular degeneration, the unfortunate prognosis is readily understood. Old corneal cicatrices frequently necrose, giving rise to the so-called atheromatoùs ulcers; they possess a tendency to recur, and may also perforate. In trachomatous pannus small ulcers arise, which may penetrate deeply or coalesce and form one large crescentic cavity. Besides the many characteristic forms which I have described, excavations occur which vary in size from a needle point to a lentil, the ætiology of which is often very obscure.

In regard to the general symptomatology of ulcer, a variable trio is present—pain, photophobia, and lacrymation. The first is local, referable to the distribution of the superior maxillary division of the trifacial nerve, or may be entirely absent.

Photophobia is in certain cases intense; this bears with greatest emphasis on the phlyctænular keratitis of children; in the central ulcer of trachoma we note the opposite extreme. Lacrymation, in my opinion a most favorable symptom, as it keeps the pathological cavity bathed by the antiseptic tears, is present to a greater or lesser degree in every instance. These symptoms are not by any means in proportion to the size or severity of the lesion. I have observed the greatest amount of irritation produced by a superficial denudation exposing the subepithelial nerves arising from a child's finger nail abrading the cornea.

When iritis intervenes, the pain, particularly nocturnal, is very severe. Cyclitis, when it occasions increased tension, is also accompanied by pain varying in intensity. Hypopyon should not be confounded with abscess, and when both are present lateral examination of the cornea and anterior chamber should prevent any error from occurring.

The duration of an ulcer depends largely upon the therapeutic measures employed. The object of treatment is to refill the cavity as soon as possible. Local medicinal treatment aims at causing death of the bacteria; it is supposed that the ulcer will then cleanse itself and subsequently heal. Logically and theoretically this is perfectly correct; practically it is the reverse. The treatment, which has been in vogue for a long period of time, consists in applying antiseptics locally; boric acid, iodoform, quinine, pyoetanin, yellow-oxide ointment, aristol, etc.—have all been used. I can not say much in their favor; those which possess any efficacy whatever are either mechanical or chemical irritants, and the non-irritating ones are absolutely useless. In regard to the former, conjunctivitis with its accompanying microbes is the result of their employment, and the ulcer is thereby exposed to reinfection. An ulcer will in time either heal or perforate, and these medicinal agents have less influence on the reparative process than in facilitating the progress of ulceration. No doubt there are a few cases in which calomel, etc., have *apparently* improved the existing conditions. There is not the slightest doubt, however, but that Nature affected the cure despite the medicine.

The treatment *par excellence* is cauterization; for this purpose we employ the actual cautery, preferably by a platinum probe heated in an alcohol flame, or a saturated solution of carbolic acid by means of a rounded match, using cocaine as a local anæsthetic. In either case light contact only is required, and one application usually suffices. The eye should first be laved with a weak solution of creolin or phenol; boric acid *ad saturandum* may be substituted. Carbolic acid is applicable, in my opinion, only in large ulcers; whenever practicable I prefer the actual cautery. The former produces good results, but the surrounding cornea may become hazy for a day or two. Neither nitrate of silver nor bichloride of mercury should ever be applied directly to an ulcerative surface, as metallic deposits may result. (In conjunctivitis when ulcers develop the silver may be discarded, and in exceptional cases, if it is imperatively required, the corneal lesion should be covered by the palpebral conjunctiva and thus protected). Notwithstanding the fact that certain writers hold diametrically opposed views on the subject of silver, my opinion is unalterable. Acetate of lead is a dead letter in modern ophthalmology, and in a well-regulated practice is rarely if ever employed. It does not possess any advantage over the other commonly used agents, and its application is attended with the danger of precipitation. Should there exist any corneal denudation whatsoever, a lead incrustation will invariably take place, which must subsequently be removed surgically.

Curettement has been brought into prominence. The ulcer is cleansed, it is true, but it is in the state in which infection may be introduced, and, secondly, the stimulus to healing is absent. Considerable irritation follows this procedure. When we observe a regressive ulcer our desire is to promote reparation; for this purpose heat, either by means of hot compresses or with a vaporizer, is called into requisition; in the majority of cases it is to the cautery that a final successful appeal is made. It is therefore much more reasonable to employ the efficacious method first and at all times. Phlyctænulæ of the conjunctiva and sclerocorneal junction should be cauterized; it is the cleanest and most satisfactory mode of treatment, and if a nebula result therefrom it is of no moment. When on the cornea, their absorption may be hastened and facilitated by heat or gentle massage, a small amount of bichloride vaseline being placed in the *cul-de sac.* When through progressive ulceration the elevation has been destroyed and a corneal excavation of varying size is produced thereby, the appropriate treatment for this condition is required. Every corneal denudation which has destroyed any part of the substantia propria will leave a nebula; cauterization will not enlarge its size. By my emphatic advocacy of this method it must not be assumed that I burn every ulcer; on the contrary, I discriminate most carefully, and thereby exclude about ten cases out of a hundred. Those which are not operated on at first sight are clean, non-infiltrated ones, also asthenic ulcers, epithelial desquamations, recent abrasions, and non infective traumatisms; the latter I judge of by the appearance rather than from the history. The only exception to the foregoing statement is the following: In the event of a foreign body being imbedded in the corneal tissue and surrounded by a zone of infiltration, in this case it suffices to remove the *corpus delicti* and scrape away the detritus. Subsequently if the ulcer does not heal in a satisfactory manner it may become necessary finally to cauterize.

The employment of only mild and conservative treatment in progressive and progressing ulcers is, in my opinion, extremely ill-advised. I do not condemn mild treatment at the start, but when its inefficiency is demonstrated at the expense of the patient's eyes, I consider that the appropriate measures are imperatively demanded. In order that the best results may be obtained from the cautery, the employment of a mydriatic or the combined use of mydriatic and meiotic, in a large percentage of cases, becomes indispensable. In regard to the use of atropine, be the pupil large or small, it should first be artificially dilated. When evidences of simple serous cyclitis are present (deepened anterior chamber and a dilated pupil) after the primary instillation of atropine, the meiotic may be used. For this alternation the following axiom may prove of service: as much eserine as possible—avoiding the causation of an iritis—and as little atropine as possible, sufficient only to maintain a mobile pupil. Generally speaking, this resolves itself in many cases thus: Assuming that we see the patient during the morning, one drop of atropine (one half per cent. for very young children, for others one per cent.) once; one drop of eserine (one fifth per cent.) noon and evening. Second day—morning atropine, and eserine at midday, evening atropine. Third day—morning atropine, and eserine not to be used that day.

On the fourth day, if there are any objective symptoms of cyclitis, the alternation should be resumed, beginning as on the first day, and be continued until the inflammatory signs dependent upon ciliary involvement are on the wane. It is impossible to accurately lay down the law in this matter of alternation, as the eyes of different persons differ in regard to reaction, and it is only through experience that these agents may be employed with advantage and without danger. The rule described above will, however, be of assistance to those unfamiliar with this practice. The main thing is to observe whether the pupil shows an inclination to respond to light; if it remain contracted and irresponsive eight hours after the employment of the eserine, there is present a most positive indication that iritis is intervening, and atropine is demanded post-haste. It would show a marked appreciation of the warning if the myotic were now consigned to the shelf for a few days, and then used very cautiously. A few experiences of this kind will render the general practitioner quite expert. I have seen the above-mentioned accident occur in given cases when the attending physician, through lack of experience with this class of diseases, failed to recognize the importance of carefully regarding the mobility of the pupil. By exercising a requisite amount of skill and care this casualty can invariably be avoided. In order to alternate with safety, it is necessary—absolutely so—to see the patient every day. In private practice, twice, and even thrice daily reduce *ad minimum* all fear of intercurrent complications and naturally improve the prognosis *ad optimum.* With this treatment it is not a question of the end justifying the means; on the contrary, although there are dangers attendant upon its use in the hands of an inexperienced and untrained person, it is as nearly infallible as anything can be. Any sthenic ulcer treated otherwise than by the cautery, and, if cyclitis coexists, by the eserine atropine alternation combined therewith, is mismanaged. Be there neither iritis nor cyclitis, atropine in moderation is requisite, not alone for its benign influence on the cornea, but as a prophylactic to prevent the intervention of iris congestion and inflammation. Any person desirous of conscientiously and successfully ministering to these cases should familiarize himself with and master the finesse of the described method, or, in justice to the patients, not jeopardize their eyes. I have employed cauterization in suitable instances with, and in appropriate ones without, the "seesaw" in more than five hundred cases with remarkable success, not only in point of rapidity and certainty of cure, but in painlessness as well. There is practically no reaction whatever, and from the moment the ulcer is burned, healing, with a rapid disappearance of the inflammatory symptoms, follows.

In speaking of ulcers which are, so to speak, candidates for cure, we must naturally omit such as arise from nerve lesions, keratitis neuroparalytica, keratitis e lagophthalmo, and those from degenerative changes—viz., staphyloma, glaucoma, xerosis, and the like. All others are amenable to the form of management under consideration.

Eserine in ulcers should never be prescribed alone; the same is true of atropine in serous cyclitis. The alternation prevents adhesions from forming, and the meiotic diminishes tension by dilating the vessels. If, when we see the patient for the first time, iritis is raging, atropine is required and eserine may, for the present at least, be disregarded; sometimes, however, the iris inflammation is rapidly cured and the evidences of ciliary congestion are seen, requiring the employment of a meiotic. Iritis is often combated with difficulty; if a one-per-cent. solution is not sufficiently strong to dilate the pupil, a two-per-cent. solution should be used. In children a one-per-cent. instead of a one-half-per-cent. is often necessary; leeches, three to six in number, applied to the temporal portion of the external angular process, greatly facilitate the attempts of the atropine. Diaphoretics—viz., pilocarpine and salicylate of sodium—are often of assistance. Iridectomy is necessitated by exceptionally severe cases only. Moderately ancient clinicians observed that after perforation occurred the ulcer healed more rapidly, and this led to the operation of paracentesis. When eserine fails to relieve pain and diminish tension, and the ulcer continues to spread, this may be employed. This procedure should not be repeated too often.

My readers may possibly have remarked that, in speaking of mydriatics and meiotics, atropine and eserine were the only two mentioned. The reason is manifest: they are the most satisfactory in the connection in which I have advocated their employment.

It must be understood that one and all of these methods, as described, constitute part of the cauterization treatment; nevertheless, they may, if desired, be used independently. Cases are at times in evidence in which the intra-ocular symptoms so greatly preponderate that the "seesaw" proves of the greatest value at first; later the cautery completes the cure. It is not good policy to cauterize and perform paracentesis at the same *séance;* the existing symptoms must indicate which should precede the other. Moist heat is, in the majority of cases, greatly appreciated by the patient. Hot compresses of saturated solution of boric acid, temperature 107° F., are to be applied for five minutes every half hour during the day for sixteen hours. Should there be much conjunctival secretion, the eyelids must be separated at each lavation and bathed with water. Irritants are applicable only in exceptionally severe cases. Under all circumstances the conjunctiva and the fornices must be carefully irrigated and disinfected several times daily by means of a glass eye-douche (undine) filled with any mild non precipitating antiseptic. The surgical rule of causal treatment bears with great emphasis upon this class of diseases. Galezowski and Bourgeois lay stress on the causative relation of lacrymal catarrhs in the production of severe autogenous ulcers.

Constitutional medication is imperatively demanded. Besides improving the hygiene and mode of life, a medicinal food—viz., cod-liver oil, preferably emulsified and combined with quinine, strychnine, hypophosphites of calcium, sodium, iron, etc.—should be administered during the cooler months of the year.

Alteratives—such as arsenic, the syrup of the iodide of iron, citrate of iron and quinine, calomel, and bichloride of mercury in small doses—are likewise indicated.

In old trachoma cases the external canthus is tightened, and the roughened conjunctiva irritates the cornea; a canthotomy or canthoplasty relieves the condition. The former procedure is also applicable in the blepharospasm of children, who suffer so intensely from photophobia in the various forms of keratitis. Trachoma should be treated by any rational method.

In phlyctænular keratitis there is almost invariably an associated dermatitis of the lids and the contiguous integument of the cheeks; there is also an inflammation of the nasal mucous membrane, and the acrid discharge produces excoriations at the orifice of the nostrils, the angles of the mouth, and at whatever site it may reach.

In addition to the ocular treatment, the nose should be kept clean; a solution of sodium chloride (ʒ j to ℥ viij) is to be poured into the nostrils with a medicine dropper three times a day. For the eczema the ointment of the yellow oxide of mercury (gr. iv to ʒ iv) may be advantageously used.

If an ordinary ulcer without iritis be seen within three days of its inception, the treatment by the cautery, combined with the mydriatic-meiotic alternation, effects a cure in five days—at the utmost seven. The longer an ulcer has existed, the less amenable does it become to treatment.

The imminency of perforation renders the prognosis more serious; nevertheless, I have repeatedly had cases in private practice, in the babies' wards of the Post-graduate Hospital and elsewhere in clinics, in which neglected or badly treated ulceration had exposed Descemet's membrane, and others in which keratocele had been occasioned, and, through the cautious use of the cautery and combined treatment, perforation was avoided and healing resulted. There exists a marked correlation between the mobility of the iris and the activity of the corneal circulation; so that, when an iritis is present, we can not expect such rapid reparation, and *vice versa*.

The bandage plays an important rôle in the treatment of the disease under consideration; there are two varieties, the protective and the pressure. Let us consider the former. During the periods that applications are not being made, a large, soft handkerchief may be tied diagonally over the head, covering the eye, a layer of cotton being interposed. A muco-purulent discharge, unless great cleanliness prevails, constitutes a deterrent. At all events, the patient must not become too accustomed to the eye remaining closed. As soon as the ulcer is healed, a pair of smoked glasses should be substituted, and these will afford sufficient protection from the sun's rays, etc. Generally speaking, the bandage is of most value when patients are exposed to the elements, etc.; this applies with particular force to the poorer classes. For private patients a dark cloth pad suffices. The room should neither be kept dark nor, on the other hand, extremely light. As children have a tendency to rub their eyes whenever there is any irritation, traumatism may be prevented by wearing a wire protector. The same is true to a lesser degree of adults, particularly at night; an accidental rub may effect considerable and even irreparable damage. I have devised an appliance for this purpose which consists of a ventilated concavo-convex mask made of wire, closely interwoven, resembling somewhat a hair sieve in appearance. There are two sizes, large and small, for adults and children respectively. When photophobia exists, the protector may be lined with any dark material. The former may also be placed over a bandage in cases of thinned cornea; the advantage is manifest.

The pressure bandage is made by applying several layers of gossypium to the closed eyelids and covering this with the roller. The compression is dependent upon the amount of interposed cotton and also upon the firmness with which the bandage is tied; the indications will be considered later.

The treatment of hypopyon does not materially differ from that of the other forms, except that there the pus and the iritis must be considered. The ulcer should be managed *secundum artem*. The purulent exudation, if scanty, may be absorbed either by the application of heat or the internal administration of sulphide of calcium. In the event of its being larger, or persisting, though small, an infero-corneal incision should be made; if tenacious, the hypopyon may be withdrawn with an iris forceps; if fluid, it escapes of its own accord. Should the ulcer extend, notwithstanding the cauterization, on account of increased tension, with or without the continuation of the hypopyon, we must proceed *à la* Saemisch. This procedure is as follows: Make the puncture and counter-puncture in clear cornea with a narrow-bladed knife, bisecting the ulcer. The anterior chamber may now be freed from the pus. The iris will become adherent to the cornea and healing is likely to result. In treating this disease we must bear in mind the implication of the ciliary body, as well as that of the iris. The prognosis is always more or less grave.

In regard to sequelæ, in general, when perforation is about to occur, be it preceded by a keratocele or not, absolute rest is necessary and a mild pressure bandage should be applied. The intra-ocular tension, if increased, may be diminished by the meiotic-mydriatic "seesaw." Paracentesis is also applicable, but in the attempt to pierce the cornea the latter rarefied membrane may rupture. For the relief of intense pain, even with the attendant risk, it is preferable to make a sclero-corneal puncture in healthy tissue rather than follow the procedure adopted by some operators—viz., to needle the ulcer and evacuate the aqueous. If perforation be inevitable, assistance of that character is not required; and if it can possibly be avoided, our duty is to produce healing in as natural a manner as possible, which does *not* mean incorporating the iris. Should the tension be diminished, atropine alone avails us. The ulcer should at all events be cauterized, and in my practice, as I mentioned before, I have observed cases in which perforation seemed on the point of occurring every moment, and this untoward result was staved off and the ulcer subsequently healed. Should a keratocele be situated over the iris it may be punctured with good results. I personally prefer to induce healing and incorporate the vesicle rather than produce a synechia anterior. When perforation has taken place the aim must be to create a firm cicatrix. Very small herniæ do not prolapse; larger ones do. If the iris inclines toward the formation of a cystoid mass, it may be cut off on the flat, or according to Leber's method. Adhesions to the cornea may be separated, the contiguous portion off the iris drawn out and snipped off. A coloboma is occasioned thereby and a fistula is likely to result. In the former procedure the iris, in most instances, will continue to prolapse and to form a cyst, and the cornea will become kerectatic. The choice now remains, Shall we apply a pressure bandage and hope, or employ a more drastic procedure with expectations of a successful issue? In these cases iridocyclitis of varying intensity is almost invariably present. If this condition is permitted to persist, the eye will most certainly perish. Should the corneal rarefaction be allowed to progress, the sequelæ of staphyloma, Critchett's operation, and enucleation confront us. Even sympathetic ophthalmia from abscission of the staphylomatous cornea, followed by passing sutures through the ciliary body, may be occasioned. Cauterization in most cases produces a firm eschar, assuming that the eye has not entirely disintegrated. Semi-occasionally an enterprising historian reports that the cautery has produced iridocyclitis, forgetting apparently that this condition previously existed. I can readily appreciate the fact that an aggravation of symptoms may be occasioned; it occurs but infrequently, however; at any rate, this procedure is the only efficacious one extant. Patients suffering from fistula of the cornea should rest in bed. The edges of the wound may be lightly touched with the cautery, and when the opening is closing, the intra-ocular tension should be kept as normal as possible. A pressure bandage is required. These cases are not very encouraging.

In regard to corneal nebulæ and leucomata, it may be stated in general terms that the larger the opacity, notwithstanding its superficiality, the greater the visual impairment. The rapidity with which cicatrices of the cornea are absorbed in childhood is remarkable. After twenty-one years of age the resorption is almost nil. In order to facilitate their disappearance, gentle massage and vaporization may be advantageously employed. Electricity for this purpose is futile and pernicious. Iridectomies for visual purposes are feasible when a sufficiently clear corneal site remains. Upward colobomata and central scars are trophies of an obsolete method of treating ulcers. I have seen quite a number.

THE
TREATMENT OF COLLES'S FRACTURE.*

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Eighty years ago Abraham Colles described a fracture of the lower end of the radius. To-day we recognize that the injury which bears his name is the most frequent form of fracture. Its treatment has so often resulted unsatisfactorily that it has probably been the occasion of more suits for malpractice than all other forms of fracture combined. It is particularly a subject deserving our earnest consideration.

Rational treatment of an injury rests upon a correct conception of its pathology.

It will be recalled that the deep fascia passing down from the forearm to the wrist is closely connected to the bony structures forming this joint. It is wrapped about the tendons which pass to the hands and fingers, forming resting places for the same. This fascia, secured to both bones and tendons, is spoken of as the annular ligament. Besides this, we have strong ligaments attached laterally on each side. Externally the styloid process of the radius and the scaphoid are secured together, while internally the corresponding process of the ulna is fixed to the cuneiform and pisiform bones. Both of these are intimately attached to the annular ligament. This joint is furthermore protected by an anterior ligament, which is composed of three bands connecting respectively the lower end of the radius, its styloid process and the ulna to the palmar surface of the scaphoid, semilunar, and cuneiform bones. Posteriorly, a ligament less strong secures the lower end of the radius to the three bones of the carpus just mentioned. It will be remembered also that the ulna does not directly articulate with the carpus, but placed between them is the triangular fibro-cartilage, which, attached as it is to both bones of the forearm, serves also as a ligament.

Our most recent text-books still describe this injury as a fracture of the lower end of the radius. The injury to the radius is emphasized. It must be a matter of surprise to the thinking surgeon, if there be merely an uncomplicated fracture of the lower end of the radius, that bad results so frequently follow its treatment. Fractures of a long bone, particularly when superficially placed and guarded by a parallel long bone, do not present ordinarily any obstacles in their care.

But it is evident, upon simply viewing a Colles's fracture, that the deformity is not limited to the radial side of the forearm. Inspecting either the anterior or posterior surface of the wrist, it is at once apparent that there is as much if not more abnormity on the ulnar than on the radial side.

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* Read before the Medical Society of the State of New York at its eighty-ninth annual meeting.

At the annual meeting of this society in 1870, Dr. Edward M. Moore, of Rochester, presented the result of his study of a then recent case of Colles's fracture. It has been said that the condition found by him is not one usually existing in Colles's fracture. It occurred in a woman who had thrown herself from a great height and had sustained fatal injuries. Colles's fracture, on the contrary, is the result of a slight injury. Yet no one will pretend to say that in a given fracture the extent of damage produced is in each instance the same.

Experimental study has shown that the position of the ulna is so changed in this "fracture" that it is proper to describe the pathological condition as one of dislocation of the lower end of the ulna associated with fracture of the radius. Dr. Moore found, in the case referred to, the internal lateral ligament stripped from its styloid attachment and the triangular fibro-cartilage torn off. The ulna, freed from its ligamentous restraint, became entangled in the deep fascia known as the annular ligament. To this entanglement rather than the radial fracture he attributed the deformity produced. Dr. Moore also found that the tendon of the extensor carpi ulnaris—which, passing through the annular ligament, is placed normally between the head of the bone and its styloid process—was thrown out of place in such a manner as to favor this entanglement of the ulna in the annular ligament and secure it in this position. In a paper presented ten years later to this society additional evidence was adduced corroborating these views.

Dr. L. S. Pilcher placed before the New York Academy of Medicine, at a meeting held May 16, 1878, the result of his experimental study. He demonstrated that the periosteum was not completely torn off from the posterior surface of the radius, but still remained attached to the upper fragment in such a manner as to secure the lower fragment in its faulty position. Displacement of the lower end of the ulna was in every case apparent. The immobility of the ulna in its abnormal position was, he believed, the result of its fixation by the strong oblique fasciculus of the anterior ligament, to which reference has been made as passing from the inferior extremity of the ulna to the cuneiform bone.

Bardenheuer, in an elaborate article upon injuries to the upper extremities, which appeared in 1888 as part of Billroth and Luecke's *Deutsche Chirurgie*, describes as occurring in connection with fracture of the lower end of the radius at least six degrees or forms of dislocation.

Tillmanns, in the third edition of his *Operative Surgery*, just issued in Germany, refers to luxation of the ulna and fracture of its styloid process as complicating fractures of the lower end of the radius.

Tillaux, in his *Treatise upon Clinical Surgery*, issued from the press during the past year, says that he has had occasion in several instances to dissect these fractures occurring in people who, after receiving the injury, had died of intercurrent affections, and each time found the ulnar styloid process broken, though its occurrence remained unrecognized during life.

Occasionally I have seen injuries which I regarded as simple uncomplicated fractures of the lower end of the radius. But these did not present the deformity characteristic of Colles's fracture. Where the clinical picture which we recognize as that of Colles's fracture is present, it is evident from what has just been stated that there exists, in addition to the radial fracture, a fixed displacement of the lower end of the ulna.

The questions which now present themselves are, first, How can we return both bones to their normal position? and, second, By what means can they be secured when replaced?

Although not agreeing as to the cause and persistence of the ulnar dislocation, both Moore and Pilcher are agreed that extension combined with pressure upon the fragments of the radius fails to overcome the deformity in Colles's fracture. But by first extending, then carrying the hand to the radial side and bringing it as far backward as possible, the ulna is released from its entanglement. Moore advised, further, to replace the tendon of the extensor carpi ulnaris, that the hand be swung from its backward position to the ulnar side, and completing circumduction by forcing the hand finally into a position of flexion. During this manœuvre an assistant holds the forearm, and the hand of the patient is grasped by the corresponding hand of the surgeon. While the traction and manipulations are being carried out, the opposite hand of the surgeon is so placed that the thumb presses against the lower end of the ulna, thus forcing this bone upward and into place, and secures at the same time the return of the extensor carpi-ulnaris tendon to its proper position if it be found misplaced.

For the purpose of completely relaxing the ligaments which are responsible for the displacement it is wise to administer an anæsthetic. Without it the operation is painful, and the patient unavoidably resists the surgeon, so that reduction is not as easily or satisfactorily accomplished.

That the first step in the treatment of a fracture is its reduction no one will deny. In the treatment of so-called Colles's fracture not only is this emphatically true, but, when once completely reduced, the displacement can not be reproduced by any ordinary movement.

Most surgical works content themselves with stating that reduction of the fracture can be accomplished by extension combined with direct pressure upon the lower fragment either with or without the aid of an anæsthetic. This procedure does not recognize the ulnar complication, and therefore fails to accomplish the desired result. For myself, I have followed the teaching of Dr. Moore, and I must confess that I have not met the serious deformities and the useless hands which have caused so much suffering and litigation.

As opposed to the very meager reference to the method of reduction, our text-books and special works upon fractures and dislocations devote many pages to the question of after-treatment. Exhaustive descriptions of numberless splints recommended by various surgeons, with illustrations of the same, can be found in all of these works.

It is self-evident that no kind of splint or dressing can secure a good result for an unreduced Colles's fracture. Too much emphasis can not be laid upon the fact that the whole secret of success rests with the proper reduction of the fracture. Once properly reduced, it is a matter of no consequence whether an anterior or posterior splint or both be used, whether the splints be straight or pistol-shaped, whether they be simple in their construction or complicated mechanical contrivances.

I must confess never to have had any experience with any kind of splint. Having reduced the so-called fracture, I have placed, as suggested by Dr. Moore, a single-headed roller bandage, two inches in length and half an inch in diameter, under the ulna from the pisiform bone upward, and secured it in place by an equally broad adhesive strap which encircles the wrist. The forearm is placed in a narrow sling; the hand, in a slightly prone position, overhangs the same, and by its own weight secures the ulna in its normal position. Some swelling follows the first dressing. It is therefore advisable to split the adhesive strap upon its dorsal surface immediately. After a few days no further swelling occurs, and a new dressing can be applied, which remains intact.

As a matter of fact, reduction having been accomplished, Nature has provided us with the best kind of splint. The ulna lying at its side prevents any displacement of the fractured ends of the bone. All that is required is to place and secure this splint in its proper position. The reduction accomplished, the pad and strap, assisted by the position of the hand, secure this end. The patient is given to understand that the sling and pad must remain as placed.

In no other fracture is there such marked tendency to stiffness of the joints and infiltration into the synovial coverings of the tendons. Splints, of whatever character, by their restriction of active and passive movements favor the development of this condition. This has been recognized by surgeons who use splints or fixed dressings, and many of them now advise their daily removal after the second week, to permit passive movements, and their complete removal after twenty days. For myself, I not only permit but advise the patient to move his fingers daily as much as he pleases, and after the first week I institute passive wrist movements. There is no pain during the after-treatment. This freedom from pain I regard as indicative of complete reduction. If pain persists after Colles's fracture, I believe the reduction is incomplete. After three or at most four weeks, the dressing is removed, and the patient finds himself able to use the injured extremity as before and with complete freedom from stiffness or non-use of the extremity.

The very satisfactory results which have followed this line of treatment make it a matter of great surprise to find one of our recent surgical writers recommending as suitable for the treatment of this injury the fixation of the forearm and hand as far as the metacarpo-phalangeal articulation in a plaster-of-Paris bandage. This line of treatment is one which has been pursued extensively in Germany and France. It is so entirely opposed to correct surgical principles that we are prepared to learn from a German surgeon that the resulting deformity is often extreme, that ulceration, phlegmon, and gangrene of the soft parts are frequently produced.

Bardenheuer, dissatisfied with the plaster-of-Paris treatment, presents what must seem to us a most remarkable alternative. He advises placing the patient in bed and confining him there during the period of treatment. The hand and forearm are placed upon a support with an upward incline. The hand, projecting beyond this splint, has attached to it an extension apparatus the cord of which is carried under a pulley fixed to the bottom of the footboard of the bed and is brought up over a second pulley at the top of the footboard, and to it the weights are attached. The extension is directed in such a manner as to overcome the existing deformity.

As opposed to these complicated methods of treatment, the simplicity of that necessary after proper reduction is apparent to every one. The only extension required is that secured by the weight of the hand. The only splint necessary is the one Nature furnishes—the ulna. There is no reason for producing immobilization of the hand or wrist, which only results in stiffness and non-use. The older methods of treatment, by whatever form of appliance, have served only to bring discredit upon the profession. We are in possession of sufficient knowledge of the pathology and correct views of treatment of this injury to realize that the proper treatment lies in its complete reduction rather than in any form of after-fixation.

AN INTERESTING CASE OF MALINGERING OCCURRING IN PRIVATE PRACTICE.

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A NUMBER of years have elapsed since the occurrence of the case which I now report for the first time. It is one not remarkable in any particularly medical way, but is interesting as showing how some of the laity can be imbued with the idea that, to become prominent in the medical world, a member of the large family of so-called freaks would be to them of immense value as a capital in trade, being indorsed by physicians, by exhibiting themselves. The scene might be laid in a country village; time, the spring; and the *dramatis personæ*, a father, daughter, some kind friends, consulting physician, and the physician in attendance, who, by the way, has gone to rest since the occurrence of the following facts:

My father, a practicing physician at the time, was called in to see the case by the attending physician, and I, a young man, became very much interested in it, and, as I shall describe later, took a somewhat active part in the drama. The previous history is somewhat of a blank, notes of the same being unattainable. It runs along about in the style of the following: The patient, a married woman, named, we will say, Mrs. P., about twenty-two years of age, had one child six years old, and following her birth a number of miscarriages. She was considerably run down in health, and was advised by the attending physician to try a change of climate; consequently she went away to visit a friend in a small country place, which was in a limestone region. While visiting, this friend took considerable interest in her and her doings, and often remarked the exceedingly small amount of blood which she passed at her menstrual period, and also the fact that the amount of urine was decreased. This, the patient informed me afterward while getting her history, kept on decreasing until some days she hardly passed any urine, and, in fact, went two or three days at a time without doing so. She was advised to return home for treatment of this trouble, and, coming under the care of the *dramatis-personæ* attending physician, he placed her upon diuretics and tonics without any seeming result. Every available means was tried to aid Nature, but still it continued, and she began to lose flesh (so she says), until it was finally determined to have a consultation, and my father was called in. The history he obtained was about as above recorded, except for the fact that she had begun to pass stones of a peculiar character instead of urine, or sometimes mixed with a little urine. Upon the second visit of my father I accompanied him, and what follows is from notes now in my possession and made at the time. Upon reaching the homestead and meeting the attending physician in a room down stairs, we were shown a stone, about three quarters of an inch in width and about the same in breadth, which, excepting one sharp corner, was as smooth as could be. It had the peculiar odor of urine which a renal calculus has, or anything which may have been put into urine and then dried. The treatment at that time, which consisted of diuretics, was still advised to be continued. In passing out to the wagon my father made the remark that it did not seem to be a renal calculus, but had the appearance of an ordinary stone which might be picked up anywhere in that locality, and, in fact, he picked up one which bore a very close resemblance to the one said to have been passed. The physician became quite provoked about this remark, and stated that he knew it was true that she had passed the stone, as he himself had taken it from her. All sorts of suggestions and ideas were offered as to what condition the ureter of the right kidney was in, as it was in that kidney that the trouble seemed to be, the reason for it being given that during the passage of these stones the pain which she underwent was referred to that locality. In order to substantiate his statements, and also because he saw that I was very much interested in this peculiar phenomenon or freak of Nature, the attending physician requested me to help him take charge of the case, which request I gladly accepted, and became from that time one most interested to prove facts if true, and, if not, to show or find cause of this peculiar disease. In fact, I might say that I became a medical detective, and from Sunday, April 10th, to May 20th I met the attending physician in consultation at either morning, noon, or night, so as to see the case in all its peculiar points, besides many times taking full charge of the case, making in that interval of time about thirty visits. During all the first part of this period she was passing small, sharp-pointed stones, which were exceedingly hard in substance. To control the pain she experienced from them she used two hypodermic injections of morphine sulphate, an eighth of a grain each time, during the day. Her appearance was of a fairly well nourished person, and her color, save for a peculiar flush which would start from her neck under her cheeks and gradually flash out, spreading all over her face, so that on pressure it would leave a white mark for a short time and then fade away again, was extremely anæmic. She was passing no urine whatever to speak of, save perhaps a teaspoonful or tablespoonful in the twenty-four hours, and that usually whenever a stone passed her, at which time it was accompanied with a lot of very finely powdered matter, which looked like gritty, sandy soil. The stones, some of which were sent away to be examined, were said to be renal calculi. We were forbidden by her father to break or otherwise destroy any of the stones, as he wished to keep them all intact. Therefore they could not be obtained to be analyzed. Among other remarkable symptoms she had no appetite, and since the passage of her first stone had lost her voice, though what connection that had with her kidney is hard to conceive. So stood the general state of affairs, with the constant trial of new remedies for her relief without any result. On May 5th, however, a specimen of her urine was obtained sufficient to make an analysis of. It was the first large quantity she had passed since she came under my notice—altogether about two ounces and a half. For the last three days previous to this she had not passed a single drop, although her bowels were at this time remarkably loose. The result of the analysis was as follows: Specific gravity, 10·04; reaction *slightly acid;* no albumin; no sugar. Microscopic examination revealed only a few vaginal epithelia, the sediment consisting of earthy phosphates. Her pulse during this period was very variable; on May 6th it was beating as high as 104; although during the period of hot flushes that I have spoken of that was not an uncommon pulse rate.

On the morning of May 8th her father called at my office and wanted me to call upon his daughter without the attending doctor knowing about it. During the course of the conversation he requested me to show him some pictures of stones that had been passed from the kidneys, which I did; also showing him some large calculi which had been removed on post-mortem examination, although I did not tell him of the fact. He spoke of the case as one of exceeding great curiosity and interest, to which I agreed, and he made the statement that he thought it would be one of importance to the medical profession at large to see which they would travel many miles. I arranged with him to see the case that afternoon, a little before the time I was to meet the attending physician, and requested him to tell the doctor that was my plan. I reached the house about 3 P. M. and obtained from the patient a corroboration of about all the history I have given. She said that she was still passing stones in great agony, and that they seemed to be growing larger. She described the feeling she experienced when a stone left the kidney as one of a very sharp, acute pain, as it engaged itself in the ureter and started on its downward course. She said she could place her finger upon the spot which the stone occupied in its various halts, which were many, on its downward passage, and at last, when the mouth of the ureter was reached and the stone dropped suddenly into the bladder, she said it produced such a violent shock that it threw her into a convulsion, which lasted a long time, and during which the doctor had to be sent for, often remaining with her all night during the passage of a stone. The pain produced by the stone passing from the bladder through the urethra to the vulva was not so acute. But she had to use a soft-rubber catheter occasionally to push the stone backward a little, or to change its course, when one of the sharp edges became engaged in the wall of the urethra on its downward course. The doctor told me that he had made several examinations, but had only found the neck of the urethra slightly swollen. She then kindly informed me that she had great faith in my treatment, and had also had dreams in which she had been shown that I was to be the rescuer of her life. When nephrotomy was proposed she objected decidedly to it, and said she preferred death. Upon the arrival of the doctor we decided to use the benzoate of sodium which had been suggested by my father, to see if we could produce any result in obtaining hippuric acid. Upon our returning to the patient's bedside I spoke of the change of medicine and what results we desired, describing as nearly as possible the appearance of hippuric acid. The next day she began passing large quantities of a white, solid substance, with a slight increase in the amount of urine. This peculiar white substance was covered with small granular dust and fine gravelly matter, which to all apparent purposes seemed to indicate the disintegration of the calculi (?). This material was tested and in some ways seemed like hippuric acid, while in others it was not at all; what it could be was a new mystery to all the physicians concerned. The stones were now appearing in a much enlarged size and were accompanied with severer pain and more lasting convulsions. She now complained of a peculiar dripping sensation in the kidney, which she described as consisting of a thick, mucilaginous substance slowly gathering itself together and dropping into a large cavity (probably referring to the pelvis of the kidney), and when a stone started from the kidney the sensation increased. Every stone which was passed from this time on was accompanied with more or less of this peculiar substance. On the 16th of May the doctor took his vacation, leaving me the entire charge of the case, so that she came under my care every day. On the evening of the 16th she passed a large, flat stone an eighth of an inch thick, three quarters of an inch long, and an inch and a half in width. I was not present at the time, her father attending her, as I could not get there. She went quietly along until the 19th, when I saw her in the morning, and she informed me that a stone was starting and would no doubt be delivered that night, and she would like me to be present at the birth. She had become so acute to all the trouble, and was such an expert in it, that now she had reached the stage where she was able to describe accurately the shape, size, etc., of the stone which was coming, as soon as it entered the ureter. Upon my arrival at the house in the evening I was told she had just passed a good-sized stone, which I saw, and which was lying in the chamber along with the peculiar material mentioned, and also some gritty, fine sand. On this visit I had made up my mind that it was a case of malingering, as a day or so previous I had handed one of the latter stones to a friend of mine, who was a geologist—the particular stone having been taken from the patient by the attending doctor—who upon examination of it asked me if iron pyrites, or fool's gold, abounded in renal calculi, as he had found some in it; and also that the stone was one of lime formation similar to many that could be found in that locality. Having decided to prove the case, now that I had an opportunity, I took very careful notes of all the proceedings from the time of my arrival, 7 P. M., until the following morning, and therefore will proceed from here on with reproductions from them. I should also add that the patient had obtained an insight as to the correct time the stone would pass as well as the shape, etc., before spoken of.

May 19th, 7.30 P. M.—Was shown stone No. 1 and the material alleged to have been passed, both in a perfectly dry condition, without any trace of water in the chamber. Pulse 96, although she is breathing hard and face still flushed, having just come out of a convulsion. Her father has driven to the village about a quarter of a mile away. I talked with the patient concerning the shape and size of the stone which was to be passed, but she could not describe it, as it had not yet advanced far enough. Gave an eighth of a grain of morphine hypodermically.

8.30 P. M.—Her father just returned from the village. Both of us went down to get supper. The servant, a deaf-mute, leaves us to go up stairs to the patient, returns in a few minutes to take a cup of tea up stairs, then returns again with cup empty.

9 P. M.—I went up stairs, when patient requested me to make her a lemonade, which I did, and which she drank. Only slight pain present. Some visitors called her father down stairs, and he showed them stone No. 1, as he has shown all the other stones to everybody, so that the entire village is talking about the case.

9.15 P. M.—Father returns up stairs, sits down, and lights his pipe, as smoke does not trouble her. Pulse 80; also continues to use a little chloroform, as she had been accustomed to doing while the pain lasted. The bottle held four ounces of chloroform, which I filled when I arrived at 7.30 P. M. As we sit here she is still using chloroform, and her face shows signs of extreme agony.

9.30 P. M.—Went down stairs and passed outside to get a little fresh air, as it was very close in her room. I left her resting very quietly, and apparently just about to sleep. As I walked up and down, thought I heard her voice; quietly took position in the shadow of a large tree which was about four feet from the house and in a direct line with her window, the shadow being formed by the light from her room lamp. I stood here for over half an hour and heard several sentences referring to myself. Among them: "I wish we had not let Dr. Parker take the stones"; then some more indistinct words. Imagine my surprise at being able to hear the patient talk in such a loud tone that I could hear her down there, while she had to whisper in her room. I then walked to the house of the gentleman for whom her father was the farmer, and seeing him asked him where I could find any slate like the stone I had in my possession and which had been passed in the afternoon. He told me of a place down near the well and also along the road to the village. He questioned me concerning the case, and although I told him of my suspicions he did not agree with me.

10.15 P. M.—Returned to my position near the house and heard the father and patient still conversing.

10.30 P. M.—Went up stairs; the patient was slightly uneasy, complaining of pain in the right side. The entire four ounces of chloroform had disappeared. Partially refilled the bottle. Footsteps were heard approaching the house and voices were heard outside below. The father went down to see who was there; the patient recognized the voices as those of the wife of the owner and a maiden lady who was a great gossip. They came in, and as the patient heard them she requested me to sprinkle chloroform over her so that they would smell it, and I was to hold a handkerchief over her face as if she was being anæsthetized, while her part was to pretend to be asleep. The ladies came upstairs, stopped at the door of the room, and I could see them looking at the patient through the crack in the door; finally they went down stairs. Again footsteps were heard approaching, when the same little farce was enacted again. Upon their leaving, the patient began talking to me, and told me that she had been favored by another dream—namely, that two more very large stones would come away; they were to be the last, and then she would get well. The father returning, I went out again, as everything seemed quiet.

11.30 P. M.—Took the stone passed and the material (unknown) which accompanied it, as well as a stone I picked up in the garden, and returned to the proprietor's house; went in and told him and his sister my opinion of the case, showing them both the stones and also the material; still their faith in the patient was unshaken. Then I asked the sister if she had been at the house that evening, and when she acknowledged it she told me what had occurred, and how they supposed she was under the influence of chloroform which I was administering and the odor of which they detected. I asked if they had sent in any food to the invalid. They replied they had, consisting of asparagus, chickens, and other delicacies, which the deaf-mute had told them she had eaten with a relish, and yet all this time she had denied to us having eaten anything, taking only a little milk, while solid food was out of the question.

12.15 A. M.—Returned to the house, where everything was quiet, her father having retired. After a short time her father entered the room, and as I sat by the bedside I asked the patient to give me the length, breadth, and thickness of the stone that was coming, when she drew a diagram an inch and a half in length, three fourths of an inch in its greatest breadth, and an eighth of an inch in thickness, in the presence of her father, which she gave to me. Her father retired again, while I still sat up with her.

12.35 A. M.—Several convulsions, and all through the most violent ones the pulse remains at 80. I now and then would read a little or write notes; sometimes both of us were talking, and yet the stone was making its way down the ureter. Every now and then she would have a convulsive movement, during which she would take a whiff of chloroform. After a time they began to increase, and she was apparently suffering excruciating pain. I offered to give the chloroform and did, with the object of getting her unconscious, so that I might make an examination of the vagina, as she would not let me before, and find out if the stone was hidden there or anywhere else. After ten minutes' inhalation her arms dropped down from her head, where she had held them. The muscles all became apparently relaxed and she breathed heavily. Thinking she was under the influence of the anæsthetic, I pinched the flesh at the base of the finger-nail, to see if she was thoroughly under it, when she immediately jumped up in bed and refused to take any more chloroform. So I lost my chance of making the examination.

1.15 A. M.—Patient told me that the pain would return about 4 A. M. I then pretended to be very sleepy, and with my head resting on the footboard of the bed, and my eyes half closed, feigned sleep. She watched me closely until from my pretended heavy breathing she presumed I was asleep. Immediately the convulsive movements ceased, she reached out for a glass of milk she had on a chair near at hand, drank it, and refilled the glass from a pitcher which was also on the chair. I then stretched myself, yawned, and awoke slowly, when she immediately went on with her convulsive movements. These continued off and on until a quarter before four. Meanwhile we had several conversations, all concerning the stone and its passage and the wonderful dreams she had had.

3.45 A. M.—Pains becoming exceedingly violent, patient desired me to call her father, which I did (an excuse to have me leave the room, as I could not call him without doing so). He came in, helped her on the chamber, which he first rinsed out (to show there was nothing in it) and placed under her while she was in the bed. While she was having the severe pain caused by the passage of the stone from the bladder, into which it had fallen, as she said, while I slept, the pain was not so severe as it had been in its passage from the kidney. She sat upon the chamber with both hands under the bedclothes, her father supporting her back, and as I turned on my heel to note the time, she gave a loud scream. I heard the click of the stone as it dropped into the chamber, and she sank back upon her pillow apparently exhausted, while the stone was produced in the chamber, along with a large amount of supposed hippuric acid, all in a perfectly dry condition, together with the gritty, sandy soil. During all these fearful agonies which she suffered, also during the exhaustive period, her pulse was 80, full and strong. The exhaustive period lasted for fully half an hour, and yet the pulse showed no change.

5 A. M.—Retired to my room down stairs, where I completed the foregoing notes, leaving the patient with her father. After a short time I crept softly up stairs and, looking through the crack in the door, found the patient quietly sleeping alone, her father having left her. Quietly slipping into the room, I felt her pulse, which was still 80, good and strong. Leaving her, I found her father asleep in his room, and as it was now about daylight, I walked around by the well, and picked up stones which could be easily cut to any desired shape, and whose character was the same as many of those that had been passed by the patient. Then I turned in for a short nap.

6.45 A. M.—The father just woke me up. Went up stairs and found the patient all right, then went down to breakfast. The father, the little girl (the patient's daughter), the deaf-mute, and myself were the only ones in the house, save the patient, and we all took breakfast together, none of us leaving the room.

7.30 A. M.—Returned up stairs, found the patient's hair neatly done up, the bed nicely made, and the room straightened up in a general way, while on going down stairs we had left everything in considerable disorder.

Knowing how to use the deaf-and-dumb signs, I was able to carry on a conversation with the deaf-mute, who informed me that the patient was in the habit of having three eggs cooked daily for her, which she ate, or at least which disappeared; also that on the previous evening she had taken up three extra eggs which she had cooked for her while I was out. Upon leaving the patient at 8 A. M. in a comfortable condition, I heard her call her little daughter by name very distinctly while she was near my buggy in the road, which was pretty good for a person who could only talk in a whisper. In passing along the road to the village—a road that the father had to pass every day of his life, and which he had also passed the previous evening—I noticed the ledge of rocks I was told of, and from which I gathered many specimens identical with those which she passed, and which I now have in my possession. Upon arriving at my office tests were made with whites of hard-boiled eggs, which corresponded to the tests made for hippuric acid (supposed). I also whittled or cut a stone out of one of my specimens which I returned to the father in place of one of the original ones, of which she had made the drawing, and which he could not tell from it, meanwhile retaining the original stone. I reported the circumstances of the case to the attending physician upon his return, but he only became exceedingly provoked at both my father and myself, and refused to believe them. The father of the patient denied everything, and even went so far as to maintain that I was under the influence of liquor—peculiar delirium of mine that.

What has ever become of the case I do not know. But surely it is one of the most peculiar cases of malingering I have ever met with in my practice. All further notes or incidents of the case were lost sight of, and, although I have heard that the case passed along to recovery (without my aid), I never really knew. The father and daughter were combined together to deceive for some particular reason, I know not what—whether to become, as I first stated, a medical freak, or for some other more debased object, I can not tell.

November, 1894.

The Philadelphia Pathological Society.—At the semi-annual conversational meeting, to be held on Thursday, April 25th, at 8.15 P. M., in the hall of the College of Physicians, northeast corner of Thirteenth and Locust Streets, Dr. George Dock, of the University of Michigan, will deliver an address entitled Trichomonas as a Parasite of Man.

The Association of Alumni of St. Mary's Hospital, Brooklyn.—The third annual meeting will be held at the rooms of the Medical Society of the County of Kings, No. 356 Bridge Street, on Monday, April 22d, at 2.30 P.M. Papers are to be presented by Dr. E. G. Mason, Dr. J. Richard Kevin, and Dr. William E. Sullivan.

BLOOD EXAMINATIONS
REGARDING THE MALARIAL ORIGIN OF ZOSTER.*

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The uncertainty regarding the ætiology of zoster makes it a disease of considerable interest to the neurologist as well as to the dermatologist. As each new theory is carefully investigated and found inadequate, others are advanced.

A brief *résumé* of the views taken by dermatological writers will serve as a suitable introduction to this paper.

In the older works, such as those of Cazenave (1), Erasmus Wilson (2), and Tilbury Fox (3), we find that zoster was considered a disease of childhood, that it sometimes appeared to be of an epidemic nature, and that outbreaks were often influenced by certain atmospherical and seasonal changes. Bazin (4) held the opinion that arthritic affections, such as rheumatism, were important ætiological factors, particularly when it occurred in children.

The recent writers—Duhring (5), A. R. Robinson (6), Crocker (7), *et al.*—agree in the main with the older observers. Hyde (8) puts malaria among the possible causes. Of late years there has been a growing belief that true idiopathic zoster was of infectious origin. Kaposi (9) supports this theory on the following grounds: That the disease generally occurs in small epidemics, and that it rarely attacks a person twice in a lifetime. Erb (10) says zoster is only the local manifestation of a constitutional malady, derived from some specific germ. Landouzy regards it as an acute infectious disease, and that change of weather and season is probably necessary for the development of the pathogenic germ. No specific organisms have yet been isolated; although many have been described by various observers, none have thus far responded to control tests.

Bramwell (11) has succeeded in cultivating several distinct organisms from the vesicular fluid; but, as the subject is still under investigation, he has not given his conclusions. Pfeiffer (12) and Wasielewski (13) consider these bodies from the zoster vesicle to be of the protozoa order; but Hartzell (14), of Philadelphia, has found these so-called psorosperms in traumatic herpes as well as in the idiopathic, which would go to show that these bodies were the result of inflammation, rather than the cause of the disease.

It will be seen from this short reference to authorities that the ætiology of zoster is still uncertain. While all agree that it is a neuropathic disturbance depending upon some irritation of the nerves, what this irritant is remains undetermined.

My attention was called to the possibility that zoster was of malarial origin by observing that many of the patients lived in districts noted for malarial diseases, and that quinine would often mitigate the severer symptoms. Actual examinations of the blood of zoster patients for the plasmodium were begun about a year ago, and, with the exception of cases like that reported by Henry Jackson (15), of Boston—which have an indirect bearing on the subject—the appended results are perhaps the first on record. *The cases were carefully selected to exclude traumatism, rheumatism, tuberculosis, or any other condition that might have an ætiological bearing on herpes zoster.*

Case I.—A robust man, aged forty-three years, living in the part of Brooklyn known as Red Hook Point, a locality noted for malarial diseases. Previous to the prodromal neuralgia he had suffered from malaise, chilliness, and other symptoms frequently seen in chronic malarial poisoning. The advent of the zoster, involving the right intercostal region, was accompanied with a severe chill, followed by fever and sweating. Temperature twelve hours after chill, 100·5°.

Examination of the blood showed the plasmodium in large quantities; the forms were the mulberry and intercellular bodies, and also others which bore a close resemblance to those described by Golgi (16).

Case II.—A lad, aged seventeen years, consulted me for a well-marked double intercostal zoster. For three weeks previous to the herpetic eruption he had suffered from symptoms suggestive of paludism. Temperature when first seen, 101°. Three different examinations failed to reveal any organisms, although the leucocytes were unusually numerous.

Case III.—A boy, aged three years, lived in a poor-class tenement, on a street where they were excavating for a sewer. The child was in a poor, run-down condition, skin yellow and waxy; liver, spleen, and lymphatic glands enlarged. Temperature at first visit, 102°. There was a beginning left intercostal zoster, which had been ushered in by rigors and other febrile symptoms. Plasmodia were found in abundance.

Case IV.—Female, aged ten years. Physical condition and symptoms similar to Case III. Temperature, 99·5°; blood showed the presence of the mulberry and flagellate forms of the parasite.

Case V.—A girl, aged twelve years. Had been feeling ill for three weeks, although no physician had been consulted until the advent of the zoster eruption. This involved the left thorax and arm. In addition to the herpes the child was feverish—temperature, 100°—had considerable adenopathy and splenic enlargement. A cover glass was prepared, but before the specimen could be examined it was broken, and, as she had been taking large doses of quinine, all further attempts at examination were abandoned.

Case VI.—A man, forty years old, employed in an excavation near the river front. He had been feeling badly for over a month before the herpetic eruption. He said that he was chilly, and every third day had headache and felt feverish. He had received no medication until forced to seek relief for a severe zoster involving the scapular, brachial, and intercostal regions of the right side. The temperature in this case was higher than any of the others, it being 102·5° in the axilla. Examination of the blood was unsatisfactory, from inability of the observer to continue a long and careful search.

Case VII.—Hospital patient, a man, aged thirty-two years, transferred from the medical to the skin ward. Gave a history of intermittent fever of one month's duration. The right gluteal and upper femoral regions were the sites of a well-marked necrotic zoster. The temperature during his stay in the hospital varied from normal to 102°. Examinations for the plasmodium negative, white blood-corpuscles numerous. It was subsequently learned that he had been taking a hospital mixture containing quinine, which would have made the examination negative had there been any organisms present in the beginning of the disease.

As the detection of the malarial parasite requires considerable skill and experience, specimens from each case were examined by different gentlemen, and it gives me great pleasure to thank Dr. A. C. Brush and Dr. E. H. Wilson for their kindness in helping to verify my observations.

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* Read before the Medical Society of the State of New York at its eighty-ninth annual meeting.

To make a proper examination it is better to procure the blood at the beginning of the eruption; and, as quinine and probably coal-tar derivatives have a destructive influence on these germs, none of those drugs should be administered before the examinations are made. In recapitulation it will be seen that out of seven cases thus far, in three there were unmistakable evidences of malarial poison, as shown by the presence of the plasmodium of Laveran. One case was negative, one uncertain, another not examined on account of the breaking of the specimen, and the remaining one was probably rendered sterile by the administration of doses of quinine. It is thus demonstrated that nearly fifty per cent. of the cases showed the presence of malarial infection; and it is probable that some of those remaining would have presented the same could a proper examination have been made. Although the cases reported here are limited in number, still, with this undoubted evidence, the conclusion is warranted that malaria can and does produce herpes zoster. From our knowledge of the way malaria occurs, it is evident that if it causes herpes at all, it can explain the relative epidemics of zoster that have been described, though other causes may also be sufficient.

Those given in this paper were not of the epidemic type; they were the true idiopathic form occurring at all seasons of the year; hence it shows with certainty that this infection may also produce sporadic cases. It is further seen that the larvated and chronic forms of intermittent poisoning are those that produce this skin affection; for, in all of those here reported, and many others in which no blood examinations were made, symptoms were observed suggestive of paludism, such as sleepiness, yawning, etc. Just how the parasite accomplishes its results can not be stated. It may be by clogging up the terminal arteries, or there may be some localized toxic effect on the intervertebral nerve ganglia, or it may be the result of a general toxæmia. As it is not the purpose of this paper to discuss pathology, but to state an ætiological fact, we will leave this subject for further study.

Of the different theories of the cause of zoster, the infectious appears to have the greatest weight of evidence in its favor. From the earliest writers to those of the present day it has been a well-recognized fact that many cases of this disease occur at the change of seasons. The claim that this skin eruption attacks a person but once in a lifetime is probably incorrect; for in a disease which is in itself uncommon, recurrences would, in the same proportion, be exceedingly rare, and of late several exceptions to this rule have been reported.

Malaria has been recognized as an influencing agent in many diseases which have been ætiologically obscure. Twenty years ago Yandell (17) maintained that it was able to cause nearly all the acute dermatoses. It matters not how correct his theories were, but if the miasmatic parasite had then been known, it is probable that his views regarding herpes would have been relegated from the field of speculation to that of assured facts.

In passing, a few moments might be given to the question of the identity or non-identity of herpes zoster and herpes febrilis. The identity of these affections was first defended by Bärensprung; since his time many observers have added their assent. Clinically, the two diseases differ somewhat; but if the germ that produces the facial herpes of intermittent fever can also cause a true idiopathic zoster, as the above cases show, it is clear that, in spite of the clinical variations, their ætiology is often identical. I do not wish to be understood as saying that malaria is the only poison that causes the herpetic eruption, but I think it should be placed in the front rank of ætiological factors, for it is confidently believed that the observations begun in Brooklyn will be verified in other parts of the world, especially in those localities where malarial diseases are more or less prevalent.

NOTE.—Since this paper was written the following additional case has come under observation:

H. S., aged forty-eight, a plumber's laborer, had been exposed by his occupation more or less to sewer gas. During the greater part of last winter he had been employed in a damp cellar, where there was an open, untrapped soil pipe. About six weeks previous to the zoster outbreak he began to have a variety of symptoms which his physician called malarial. He frequently had chills, fever, and sweating. According to his story, it appears that these phenomena did not occur with any regularity. Three weeks after—that is, three weeks before the zoster—he began to suffer from "facial neuralgia" (?). This continued intermittently until thirty-six hours before his visiting the skin department of the Long Island College Hospital, when a few vesicles formed on the ear and right side of the face. This herpetic process rapidly spread until the cervical, scapular, brachial, and upper thoracic portions of the right side were covered with a well-marked zoster eruption. Some of the older vesicles were becoming necrotic. The temperature at that time was 100° F. An immediate examination of a fresh specimen of blood revealed the intercellular and free pigmented forms of the plasmodia.

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1255 PACIFIC STREET.

NÆVUS MATERNUS.*

By S. P. ALLEN, M.D.,
WHITNEY'S POINT, N. Y.

From time immemorial it has been the popular belief that all nævi were simply the result of peculiar longings of the mother during her pregnancy for various delicacies which are thought to bear some sort of resemblance to the so-called "mother's mark"; or else they were caused by a sudden fright or injury, the mark resembling the object at which the woman became frightened or being situated on that part of the child corresponding to the seat of the injury on the mother; or from anger, the mark assuming the form of the object at which she became enraged.

On this subject medical authorities are not agreed. Some, adhering to the popular belief as above stated, and others, discarding this entirely, hold to the theory that some, at least, of the malformations are owing to an arrest of development dependent upon a defective organization of the germ, and that others are probably caused by irritation of the nerve centers, or perhaps are due to faulty position of the fœtus *in utero*, while still others are the result of violence inflicted upon the child during gestation. As for myself, I had always been one of the unbelievers in the popular theory until quite recently, when four cases came to my notice, two of which were of such a nature and so situated that treatment was not required and would have been useless. The others were treated successfully, and one of them was so plain a case and of so serious a nature that I deem it worthy of notice:

Case I.—Mrs. T., aged about thirty-five years, was, during her pregnancy, left entirely alone for a day at a farmhouse, and, being some distance from neighbors, had felt a little uneasy all day. A little before sunset she was obliged to go to the barn, quite a distance from the house, to do some chores, and just as she was in the act of opening the door she heard some one speak to her. She was startled, and looked around to see where the voice came from; not discovering any one, she became frightened and was about to run for the house when she again heard the voice, and, looking up, saw a balloon with basket attached, and a man in the basket who was trying to attract her attention. In turning suddenly she struck her abdomen with such force against the door as to cause considerable pain, but no serious injury. A few months later a boy was born with a perfect picture of a balloon and basket all complete on the abdomen, just at the same point where the mother was hurt by the barn door.

Case II.—This was caused by the mother longing for a Bartlett pear. So intense was her desire that it caused considerable anxiety on the part of her friends; but as it was at a season of the year when her desire could not be satisfied, she went without. I attended her during her confinement, and she remarked during labor that she expected the child would have a pear on it somewhere, and sure enough, when the child was born, a well-developed pear was attached to its little finger by a stem about an inch in length. The pear was of about the size of a filbert.

Case III.—This was caused by anger. Mrs. M., while pregnant, had been baking some pies and had set them out in a back room to cool. When she returned an old hound, against which she had a strong antipathy, was just in the act of making off with a pie in his mouth. She was very angry and attempted to strike the dog, but he dodged past her and escaped with his booty. In due time a girl was born, but very much disfigured. The left ear was of the shape of a dog's, and hung down in the same way; the left eye was also shaped like that of a dog; the left corner of the mouth extended farther back than the right, and in shape very much resembled that of a dog. She grew to be a young lady, and the eye and mouth improved considerably, but the ear continued to grow down, and was always kept covered with her hair; yet, in spite of all that could be done, she remained an object of pity.

Case IV.—This was the cause of so much suffering and anxiety on the part of the patient and family that I was called to treat it, and will in brief give its history and treatment:

Nineteen years ago Mrs. S., who lived in a farmhouse situated near a piece of woods, was one day skimming milk in the dairy, when suddenly a partridge flew in at the window and near where she was standing. She was so frightened that she jumped back to get out of the way, and in doing so struck her hip against the corner of the stairs with such force as to cause considerable discoloration and some lameness for a few days. The part injured was near the great trochanter on the left side. She continued to the end of her term and was delivered of a female child, perfect in every respect except for a mark at the same point on the left hip where the mother was injured, which resembled a partridge with wings extended, as the mother saw it. The girl, who was bright and promising, grew to the age of eighteen years without suffering any inconvenience from it. At this time she noticed that it was growing, and at times was quite painful—so much so that some time during April she called my attention to it. I found a dark purple discoloration of the skin, in size about two inches and a half by three inches, and in shape as before stated; it seemed to be composed of a mass of large veins situated just beneath the integument, and upon careful pressure a faint pulsation could be detected. At one point near the center the covering seemed to be very thin. I informed the family that there was danger of hæmorrhage that might possibly be of a serious character, and advised the removal of the entire mass by excision. To this they refused to listen, being afraid of the knife, and thinking that some other plan of treatment would be better. They returned to their home in Cortlandt County, and the young woman went about for a few days as usual, except that she began to be quite lame and to suffer more pain, when all at once without any apparent cause, an alarming hæmorrhage came on. They succeeded in controlling it by compression until the arrival of the family physician, who dressed it, and after watching it for a few days told the family that he thought the opening could be healed, and advised them not to have it removed. He continued to treat her until the first of last September, but still the place refused to heal, and it had steadily continued to enlarge, except at one time during the summer, when for a few days it had almost entirely closed, but only to break down more than ever before, until the open sore was nearly an inch in diameter. Soon after this she was brought to my office again, and while there she had another hæmorrhage which was quite troublesome to control, but by means of a firm compress and tight bandage we succeeded. They then told me that if I stil thought best to remove it I could do so with their full consent. I said to them that since their physician did not think best to operate I would like counsel and assistance in the case, for the reason that, from the loss of so much blood and the constitutional disturbance caused by her suffering and anxiety during the summer, she was not in good condition for an operation.

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* Read before the Medical Society of the County of Broome, N. Y., January 8, 1895.

Accordingly Dr. C. B. Richards, of this city, was called in consultation. After a careful examination it was thought best to remove the growth at once, as her life was now being endangered by longer delay.

After cleansing and thoroughly preparing the parts she was put under an anæsthetic and we proceeded to remove the entire mass. We did not anticipate any serious hæmorrhage, for the reason that it was thought to consist only of enlarged veins, and when they were emptied we believed we would have no more trouble, knowing that there were no arteries of any size near this region; but to our surprise the second stroke with the knife severed an artery of about the size of a goose quill. This was secured, but not without the loss of considerable blood, which our patient could ill afford to lose. We now thought our trouble over, for we considered this the feeder; but it was not so, for at almost every stroke of the knife I severed an artery of smaller size; they seemed to come from every direction like the spokes of a wheel, the hub being represented by the growth. We finally succeeded in removing the entire mass, which measured five inches in length by two inches and a half in breadth. The loss of blood was much more than we had expected, but was finally controlled, and the wound was closed by the interrupted suture, dressed antiseptically, and left for a week, with the hope that we might get union by first intention; but in this we were disappointed. Owing to the loss of so much blood and the patient's previous condition, only about a third of the wound healed without suppuration. The remainder filled in slowly by granulation, and at the end of about five weeks was entirely closed and in good condition. She has steadily gained in flesh and strength, and is now in much better health than for a long time before.

ABSENCE OF THE EPIGLOTTIS.

By THOMAS HUBBARD, M.D.,

TOLEDO, OHIO.

Mrs. A. H., German, aged thirty-five years, was first seen August 3, 1894. Her general appearance is that of one who has experienced considerable ill-health and malnutrition. The voice is low-pitched and rather coarse, and she speaks with some effort.

She is the youngest of six children, all living and healthy, and her parents, now over eighty, enjoy remarkably robust health. Her life has been spent on a farm. She was married in May, 1894. The maternal grandfather died of consumption, and her half-sister (same mother) died after a sickness of several years of the same disease about five years ago. She was very intimately associated with her during her sickness, caring for her and often kissing her, as she stated.

Until she was nine she was a very strong child, but was injured by overwork and exposure, and during the rest of her developmental period she was in very poor health. These facts are mentioned to call attention to the inherited vitality and the remote and also the probable determining factors in the disease which followed. About a year after the death of the sister she again declined in health, more or less severe pulmonary symptoms predominating. She coughed badly for two years, and then had an attack of *la grippe*. Her scarred chest bears witness to the heroic treatment received at this period and tends to confirm her statement as to the diagnosis. She states clearly that all expected her to die of consumption. Soon after the *la grippe* her throat began to trouble her, described in her own language as "a burning raw place low down in her throat, like a spot with no skin on it." Gradually the pulmonary symptoms subsided as the throat became worse. For a time she was quite hoarse, and then the distressing symptoms abated and left her with a sensation of lateral tension or slight constriction in her throat. For two years she has been quite free from cough, but has not been able to eat salty or highly spiced foods or pickles, or take cold drinks, without experiencing a burning sensation for several hours. There has been no trouble with deglutition whatever, except as above mentioned.

Examination of the thorax reveals dullness over the right apex, with tubular respiration over a limited area, and tenderness on percussion over both apices. At present she considers herself in very fair health, but she is extremely cautious, especially in the matter of diet, since slight indigestion causes aggravation of the throat irritation.

Laryngoscopic examination shows that the epiglottis is almost entirely gone. A small stump remains about a centimetre in breadth and about half a centimetre in length. The upper margin is somewhat granular, and all of the edges ar angular. There is some tension of the lateral epiglottidean folds, but the intralaryngeal structures seem normal in their relations. The mucous membrane over the arytænoids is somewhat thickened and hyperæmic.

The history would indicate that the loss of the epiglottis was recent. Its appearance is rather opposed to the idea that it may have been a congenital defect, since in that case it would have been round and smooth at the edges. Six months' observation shows no material change in her condition. There are at present no signs of active tubercular disease whatever.

Syphilis, congenital or acquired, is excluded in so far as it is possible. It is difficult to decide positively as to the cause of the condition of the epiglottis, but the study of the case inclines me to ascribe it to tuberculosis or possibly lupus. Further observation may clear up this matter.

SNELLEN'S TEST TYPES.

By G. W. GROVE, M. D.,

KANSAS CITY, MO.

I should like to call attention to certain errors in the size of the test type commonly used by oculists in ascertaining visual acuity. If any one will observe by actual mensuration the size of the type on the cards put out by different firms, he will find that there are variations in the size of the test letters which will produce errors too great to be ignored in practice. I have frequently measured these types in private offices and in New York hospitals, and found them usually wrong.

These types are generally arranged for a distance of twenty feet in testing an eye; the angle each letter subtends is five minutes, as indicated by the number on the card. Thus No. 200 at two hundred feet subtends an angle of five minutes, and $\frac{20}{200}$ or $\frac{1}{10}$ is the visual acuity (V.). No. 20 at twenty feet subtends an angle of five minutes, and $\frac{20}{20}$ or 1 is its V. Now, it is important that these letters be of correct size; if they be too large, V. is less than we have calculated; if too small, then V. is greater than we have reckoned. My observation is that Snellen's types are too large—a fault of the printer.

In the following table, column A shows the distance in feet, as indicated on the card, at which the letter subtends an angle of five minutes of arc; B shows the false size of these letters in millimetres; C shows the distance at which this false size of type must be placed to maintain correct test of V.; and D shows the size in millimetres the type must be in order to be correct:

A.	B.	C.	D.	E.	F.	G.
200	96·0	220·0	87·5	200	87·5	0·1
100	48·0	110·0	43·6	100	43·6	0·2
70	32·5	74·5	30·6	65	24·7	0·3
50	24·0	55·0	21·8	50	21·8	0·4
40	18·5	42·3	17·5	40	17·5	0·5
30	14·5	33·0	13·1	33	14·4	0·6
20	10·0	23·0	8·75	28	12·2	0·7
				25	10·9	0·8
				22	9·6	0·9
				20	8·7	1·0
				18	7·9	1·1
				17	6·5	1·2
				15	5·9	1·3
				13	5·4	1·5
				10	4·3	2·0

If No. 50 is taken at twenty-four millimetres instead of 21·8 millimetres, as shown in column A, then V., instead of being $\frac{20}{50}$ or 0·4, is $\frac{20}{55}$ or 0·36; and if No. 20 is taken at ten instead of 8·75, then V. is $\frac{20}{20}$ or 1 instead of $\frac{20}{23}$ or 0·8, which are errors too great to be passed over.

By reference to column D any one can take a tape line or ruler, graduated in millimetres, to measure his own type to ascertain whether it be of correct size. By columns G, E, and F, whose numbers I have carefully calculated, any one may measure or select type for visual acuity from $\frac{1}{10}$ to 1. Thus it is seen from column E that $\frac{20}{65} = \frac{3}{10}$; $\frac{20}{50} = \frac{4}{10}$, and so on. If the type as indicated in column F is greater or less than there given, then the visual acuity would be wrong.

This question of the false size of test letters so commonly used I have deemed of sufficient importance to call to it the attention of oculists both in their private and hospital practice.

An American Milk Yarn.—E. Marsh, of Mineral Township, in America, comes to the front with a story that is both wonderful and unique, but true in every detail. About five weeks ago a Durham-Alderney cow, aged two years, gave birth to a calf, and they began to milk the cow, but were thunderstruck when they discovered that its milk was black. The calf, however, thrived upon the milk, and last week Mrs. Marsh, having overcome her prejudices, decided to try some of the milk. It tasted the same as other milk, only it was much richer, and by leaving a crock of it to set four hours nearly two inches of cream, a little lighter in color than the milk, would rise to the top. Two gallons of the cream were churned and four pounds of butter were secured. The butter was examined by a chemist, who pronounced it perfect butter only in color, and gave the reason for the color something yet unknown to science in the blood of the animal. The butter much resembles coal tar and has a delicious taste. People are coming from far and near to see the freak, and Mr. Marsh has been offered big sums for the cow. He has decided not to sell her, however, in the hope that he can raise some more stock of the same kind. A roll of butter will shortly be sent to Franklin and placed on exhibition. The milk makes fairly good ink and the cream might be used for printers' ink.—*Food and Sanitation.*

Change of Address.—Dr. Cornelius M. O'Leary, to No. 8 Convent Avenue, New York.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by
D. Appleton & Co.
Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, APRIL 6, 1895.

THE ANTITOXINE TREATMENT OF DIPHTHERIA.

There are signs that we shall soon be prepared in this country to give this treatment all the trial that may be needed to demonstrate either its efficiency or its comparative worthlessness, for the sources of abundant supplies of the antitoxine are fast multiplying. Among recent additions to these sources is the Massachusetts Board of Health. The *Boston Medical and Surgical Journal* for March 28th publishes an official statement by the secretary of the board that it has prepared a supply of antitoxine for the benefit, primarily, of such communities in the State as find it difficult or impracticable for any reason to supply themselves with the new agent from reliable sources. We are glad to see the following passage in the statement: "The board *does not propose to offer it for sale*, but its gratuitous distribution will be under strict conditions designed to prevent abuse and waste and to obtain the most beneficial fruits. Each bottle is marked with a number and the date of the preparation of its contents. No antitoxine will be issued except upon a pledge that a full statement of the observed effects of its use will be returned to the board at the termination of the case. In all instances possible a bacterial diagnosis will be insisted upon." It will be seen that the Massachusetts board does not seek to attach a commercial tail to its operations, and therein it shows due respect for the rights of citizens of the State, while in no wise neglecting anything that an official sanitary board may properly undertake in the way of facilitating the amplest trial of the new treatment.

Doubtless it is yet too early to declare that the efficiency of the antitoxine treatment has been demonstrated, but it must be said that the prospect of such a demonstration is apparent. Whenever any inquiry of this sort is before the profession, and especially when it is before the public, as in this instance, there are never wanting those who set their faces with the fixity of fanaticism against the measure, can see no good in anything so novel and radical, and seize upon every misadventure in its employment to confirm and justify their opposition. Such a misadventure has recently happened in Brooklyn—namely, the speedy death of a diphtheria patient after receiving an injection of the Behring serum. The death has not at the time of our going to press been explained satisfactorily, but we feel sure that no blame can be attached either to the physician who gave the injection or to the firm that imported the serum. The unfortunate occurrence enforces, however, the need of minute caution, and in connection with it we would call attention to Dr. Mapes's letter published in this issue of the *Journal.*

MINOR PARAGRAPHS.

A REMARKABLE INSTANCE OF RECKLESS ASPERSION.

The *Lancet's* Berlin correspondent tells of the prosecution of a quack who had undertaken that within three months he would cure a woman far gone with tubercular consumption. The woman died in a fortnight. At the quack's trial for fraud one Dr. Long, described as "medical officer at the Berlin law courts," was asked by the defendant's counsel if it was not possible to cure consumption. Not content with having answered that it would be "as easy to fetch a star from the sky as to find a universal remedy for this illness," he is reported to have remarked, in reply to the counsel's allegation that his client was "as persuaded of the curative effect of his remedy as Professor Koch was of tuberculin," that in his opinion they were both, Dr. Koch and the defendant, "guilty of the same crime," and that he did not understand the public attorney's "prosecuting the little and not also the great thieves."

THE *BUFFALO MEDICAL AND SURGICAL JOURNAL.*

The accomplished and genial editor of this well-known and highly esteemed journal, Dr. William Warren Potter, informs us that it will have completed in the course of a few weeks the term of fifty years of publication, and that he intends to mark its semicentennial anniversary by increasing the number of pages of reading matter in each issue from sixty-four to eighty and by making "other improvements that will contribute to its efficiency and keep it abreast of the professional progress of the period." Medical journals, like wine and violins, are prone to grow better as they grow older, and the *Buffalo Medical and Surgical Journal* shows manifest evidence that it conforms to the rule in this respect. We wish it centuries of ample prosperity.

THE DISCHARGE OF PATIENTS FROM LUNATIC ASYLUMS.

A new statute has been enacted in the State of New York governing the discharge of inmates of the State hospitals. It provides that the managers may discharge a patient whenever, in their opinion, the public interest will not be affected injuriously by his liberation, and that, on their declining to do so, a judge of a court of records may order the discharge, not, however, until the superintendent has been heard and the patient's history read.

"INDUCED" MALPRACTICE.

A recent example of newspaper medicine is the outcome of a coroner's inquest in a case of alleged criminal abortion. The deputy coroner is made to testify as follows: "The girl, he found, had died of endometritis, peritonitis, and double pleurisy, caused by malpractice, but whether it was induced or not he was unable to say. In his examination he said that the autopsy revealed that medicines had not been used."

ITEMS, ETC.

The Brooklyn Case of Death after the Use of Diphtheria Antitoxine.—We have been asked to publish the following documents:

"Brooklyn Health Department.

"*Hon. Z. T. Emery, M. D., Commissioner of Health.*

"Sir: I have the honor to report that yesterday, April 1st, I procured from Schulze-Berge & Koechl two bottles of Behring's antitoxine No. 2, containing a thousand immunity units, sealed under the date of January 30th, operation No. 159, being a portion of the same lot as used in the case of Bertha Valentine. Of this serum one cubic centimetre was injected beneath the skin of a guinea-pig weighing four hundred and twenty grammes at 4.30 p. m. The animal suffered no inconvenience from this injection. At the time two and one half cubic centimetres of the same serum were injected directly into the ear vein of a large rabbit. This animal suffered no inconvenience. I also obtained from Dr. Clayland, the coroner's physician, about one ounce of fluid blood received in a sterilized bottle from the right auricle of the heart. One half of this blood was given to the chemist of the department for the chemical analysis. Direct microscopical examination and cultures from this blood showed it to be free from micro-organisms. Speculative theories may be advanced as to the cause of death in this case, the true cause not having yet been determined, but the above experiment, conforming as nearly as possible to the actual condition, demonstrates that the cause was not inherent in the antitoxine. Sincerely yours,

[Signed.] "E. H. Wilson, M. D.,
"*Chief Bacteriologist.*"

"Bacteriological Laboratory,
"New York City Board of Health, *April 2, 1895.*

"This is to certify that, in view of the sudden death which recently occurred in Brooklyn after the administration of Behring's diphtheria antitoxine, and at the request of President Wilson of the New York City Board of Health, in the absence of Dr. Biggs, I obtained from Messrs. Schulze-Berge & Koechl, the American agents for the remedy, two vials of the antitoxine from the same lot, operation 159, as that which was employed by Dr. Kortright in the case alluded to. I have submitted both vials to thorough tests at the bacteriological laboratory of the board of health by injecting excessive doses into guinea-pigs and rabbits without producing in the animals any deleterious effects whatever. Specimens from both vials were also submitted to bacteriological tests, and were found to be absolutely free from living germs of any kind. These results, taken together with the fact that the New York City Board of Health has employed this same make of antitoxine in a considerable number of cases with only the best of results, lead me to express the opinion that the unfortunate results which followed its administration in the case referred to can not be attributed in any way to the antitoxine which was employed.

"W. H. Park, M. D.,
"*Assistant Director of Hospital Bacteriological Laboratory, N. Y. C. B. of H.*"

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 2, 1895:

DISEASES.	Week ending Mar. 26.		Week ending Apr. 2.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	5	1	5	2
Scarlet fever	106	18	114	16
Cerebro-spinal meningitis	3	7	3	2
Measles	162	18	143	9
Diphtheria	219	41	225	40
Small-pox	6	0	0	0
Tuberculosis	88	130	259	107

The Cleveland Medical Society.—At the meeting of March 22d the special order was a lecture by Dr. M. Allen Starr, of New York, on The Mechanism and Causation of Nervous Diseases.

Cold in the Treatment of Pneumonia.—Dr. Thomas J. Mays, of No. 1829 Spruce Street, Philadelphia, asks us to publish the following:

"To the Members of the Medical Profession: My last paper on Ice-cold Applications in Acute Pneumonia gives a record of seventy-four cases so treated, and only two deaths. Being desirous of making a full collective report on this subject, I take the liberty of asking those who have tested this measure to kindly give me the result of their experience with it. Full credit will be given to each correspondent in the report which I hope to publish."

The Late Dr. Thomas F. Parkes, of Brooklyn.—By order of the Kings County Medical Association, a committee of that body has prepared the following:

"Thomas F. Parkes was born in Brooklyn, N. Y., July 30, 1863. He received his education in the public schools of this city and in Wright's business college.

"He attended one course of lectures in Bellevue Hospital Medical College and two in the Long Island College Hospital, where he made abiding friends, including among them his professional associates, and where he acquired proficiency in the practice of his profession, being mindful of his patients and faithful to himself in the improvement of his opportunities.

"He was fortunate in the choice of his field for private practice and unusually successful in acquiring a paying business.

"He was single, and had his office and home with his parents at 603*a* Halsey Street, where he died.

"The cause of his death was somewhat obscure. It was reported to be 'œdema of the glottis.' Dr. Maine, of this association, was with him in consultation the night before his death, when he appeared to be in his usual health. His bereaved mother said that he came home from a patient about one o'clock in the night, and that she heard him pass the door of her room to retire about two o'clock, without a sound to indicate sickness. He called to her about an hour later and when she entered his room he was struggling for breath. Dr. Maddock and Dr. Clowminzer were summoned, but all efforts failed to give relief, and he died about two hours later, at 5 A. M., December 21, 1894.

"In his death this association has lost a member of promising usefulness and is reminded of the dangers and uncertainties which environ all physicians.

"N. W. Leighton,
[Signed.] "F. C. Raynor, } *Committee.*"
"H. C. Riggs.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from March 24 to March 30, 1895:*

Gibson, Joseph R., Lieutenant Colonel and Deputy Surgeon General. The leave of absence granted him on account of sickness is still further extended six months on surgeon's certificate of disability.

Poindexter, Jefferson D., Captain and Assistant Surgeon, is granted leave of absence for one month.

Shannon, William C., Captain and Assistant Surgeon, is granted leave of absence for three months, to take effect on the expiration of his present sick leave, with permission to leave the United States during May and June, 1895.

Stiles, Henry R., First Lieutenant and Assistant Surgeon. The extension of leave of absence granted him on surgeon's certificate of disability is still further extended two months on surgeon's certificate of disability.

Society Meetings for the Coming Week:

Monday, *April 8th:* New York Academy of Medicine (Section in Ophthalmology); New York Academy of Sciences (Section in Chemistry and Technology); New York Medico-historical Society (private); New York Ophthalmological Society (private); Lenox Medical and Surgical Society, New York (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Maine Academy of Medicine (Portland); Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Shelby County, Indiana, Medical Society.

Tuesday, *April 9th:* Medical Society of the State of Tennessee (first day—Nashville); New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Jefferson (quarterly—Watertown), Oneida (annual—Utica), Ontario (quarterly), Rensselaer, and Tioga (Owego), N. Y.; Newark, N. J., Medical Association (private); Trenton, N. J., Medical Association; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Bergen (annual—Hackensack) and Cumberland (annual), N. J., County Medical Societies; Fairfield, Conn., Medical Association (annual); Northwestern Medical Society of Philadelphia; Practitioners' Club, Richmond, Ky.

Wednesday, *April 10th:* Mississippi State Medical Association (first day—Jackson); Medical Society of the State of Tennessee (second day); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Society of the County of Albany, N. Y.; Tri-States Medical Association (Port Jervis), N. Y.; Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society; Kansas City, Mo., Ophthalmological and Otological Society.

Thursday, *April 11th:* Mississippi State Medical Association (second day); Medical Society of the State of Tennessee (third day); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; New York Laryngological Society; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia; New London, Conn., County Medical Society (annual).

Friday, *April 12th:* Mississippi State Medical Association (third day); New York Academy of Medicine (Section in Neurology); Yorkville Medical Association, New York (private); Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.

Saturday, *April 13th:* Obstetrical Society of Boston (private).

Births, Marriages, and Deaths.

Died.

Clutterbuck.—In Morristown, N. J., on Thursday, March 28th, Dr. Austin S. Clutterbuck, aged thirty years.

Fisher.—In New Orleans, on Tuesday, March 26th, Blanche Eliza, daughter of Dr. and Mrs. Milton Randolph Fisher, aged three years and four months.

Grooms.—In Wilmore, Kentucky, on Wednesday, March 27th, Dr. S. H. Grooms.

Joyce.—In New Orleans, on Monday, March 25th, John Power, son of Dr. and Mrs. P. A. Joyce, aged seven months.

Letters to the Editor.

THE ANTITOXINE TREATMENT OF DIPHTHERIA.

Cleveland, Ohio, *April 1, 1895.*

To the Editor of the New York Medical Journal:

Sir: Permit me to submit a brief note of an outbreak of diphtheria in the Summit County Children's Home at Akron, Ohio.

The home contains sixty children, varying in age from two to fifteen years, and fifteen attendants, and Dr. L. S. Ebright, health officer of Akron, is the physician in charge.

After making a preliminary bacteriological examination of one of the cases I went to the home on Dr. Ebright's summons on March 30th and found one boy convalescent after a week's severe illness; another boy, sick three days, dying of profound toxæmia; and three girls, ill ten days, with pronounced symptoms of a severe diphtheria. The boy lived but six hours after my visit.

Therapeutic injections of the diphtheria antitoxine obtained from our (Wooster Medical College) horse were given to the sick children, and immunizing injections were administered to all the children and attendants in the home (seventy in number).

One new case developed on March 31st, and was treated with antitoxine. In forty-eight hours a remarkable improvement was observed in the patients receiving the therapeutic injections—marked diminution of fever and pulse and *complete disappearance of membrane* from the throat. To-day (April 1st) the sick children are wonderfully improved.

Bacteriological examinations were made in all these cases, and diphtheria bacilli identified. No new cases have developed among the immunized individuals, though there were several suspicious cases at the time the injections were made.

Thus far we have been unable to trace the source of the disease, which is entirely confined to the children in this institution.

There is little reason to doubt that the prompt and liberal use of antitoxine will save this home from a devastating epidemic of a severe type of diphtheria.

A. P. Ohlmacher, M. D.

DAMAGED DIPHTHERIA ANTITOXINE.

Nursery and Child's Hospital, New York, *March 21, 1895.*

To the Editor of the New York Medical Journal:

Sir: Physicians should be warned against a large quantity of Behring's antitoxine serum at present on the market in New York that is unfit for use. Instead of being clear, transparent, and of a pure amber color, as it should be, many bottles are sold containing a cloudy opaque serum that is slightly more milky-looking than mucilage, but still resembles it.

Undoubtedly some chemical or physical change has taken place in the serum, due, perhaps, as some of the dealers suggest, to prolonged freezing during transportation from Germany. Examination shows no bacterial or fungous growth to be present. Its antitoxic properties, however, must be to a great extent or entirely destroyed; and it should under no circumstances be used, as otherwise unwarranted disrepute might be brought upon this new method of treatment.

Each bottle must be examined carefully before using. Antitoxine serum, when kept cool and in a dark place, can, as a rule, be preserved in good condition for a number of months; if, however, it spoils, a cloudiness will immediately appear and make this change easily recognizable.

James Jay Mapes, M. D.

MEDICAL ADVERTISING AND THE MAILS.

New York, *March 28, 1895.*

To the Editor of the New York Medical Journal:

Sir: I received to-day (in common with many other victims, I suppose) a pamphlet containing some twenty reproductions of photographs of syphilitic skin lesions. Many of the pictures were of men stark naked, and showing uncommonly well-developed genitalia. One picture showed the genitalia, and but little of the man.

This pamphlet, issued to advertise some proprietary nostrum, was sent by mail to my house, and lay for a while on the table of my waiting room in an *unsealed* envelope, so that any woman or child prompted by curiosity might easily have inspected it, which they would have been all the more prone to do since the wrapper was marked in large letters "for medical men only."

While photographs of this kind have a legitimate place in systematic works on syphilis, to use them for purposes of commercial exploitation is disgusting, and to thrust them into a man's house in such a way that any member of his family—the women, the children, and the female servants—may easily get hold of them, is a signal invasion of his rights.

I have sent the pamphlet, with the wrapper as I received it, to the Postmaster-General at Washington, with the request that the Post Office take means for the abatement of this nuisance. For scarcely a week goes by without there arriving by mail, in open envelopes, pamphlets marked in large letters on the covers, "Painful Menstruation," "Sterility," "Impotence," or some such title calculated to arouse curiosity, and it is some trouble to be obliged to tear these into pieces small enough to be useless before throwing them into the waste basket. But pamphlets of this sort are petty annoyances compared with the ostentatious indecency of the publication received to-day.

While we may call on the postal authorities to protect us from having these things thrust into our houses in unsealed envelopes, yet the ultimate cure for this evil (steadily on the increase) must be sought in the attitude of the medical profession itself, which should mete out a stern disapproval to all who, for the sake of selling their wares, offend against decency and good sense.

Walter Mendelson, M. D.

New York, *March 29, 1895.*

To the Editor of the New York Medical Journal:

Sir: A letter has reached me from a medical practitioner of this city in which he complains regarding a pamphlet recently sent out by our company. This pamphlet is intended to show the therapeutic value of arsenauro and mercauro. It is entitled "Twenty Photographs for the Medical Profession Only," and it means exactly what it says. My response to the complainant will be found herein. May I ask that you publish it?

Charles Roome Parmele.

[Mr. Parmele's inclosure.]

"New York, *March 28, 1895.*

" ——— ———, M. D.,

"—— *Street, New York.*

"Dear Sir: Your favor of even date just received. If our pamphlet has reached other eyes than your own in your house, the writer exceedingly regrets the fact. Upon both the envelope and the pamphlet are the plain Anglo-Saxon words, 'For the Medical Profession Only.' Far worse illustrations appear in the medical journals and in medical text-books, and if you subscribe for any you must know that neither reach you in sealed envelopes. It occurs to us that every physician who keeps pace with medical progress must constantly receive in his office many things which are profitable to him, yet not intended as an amusement to the household. The writer claims to possess proper instincts as to morality, propriety, and refinement; hence the wording on the envelope and on the pamphlet.

"You speak of our goods as nostrums. Permit us to say that they are not such; they are very remarkable chemical products and indorsed by professional colleagues of yours whose utterances we do not believe you will have the temerity to question. We do not permit the laity to have any of our literature, our work being done in strictly ethical channels.

"Pardon us if we offer the suggestion that, inasmuch as your office and residence are in the same building, you do as other medical practitioners do—namely, insist that communications addressed *to you* be opened *by you* and *not* inspected by those to whom the communications are *not* addressed. If the members of a household should inspect every medical journal which comes to a physician, your line of argument would exclude the very data which make medical journals of value. How about the *New York Medical Journal*, the *New York Journal of Gynæcology and Obstetrics*, the *American Journal of Obstetrics*, the *Journal of Cutaneous and Genito-urinary Diseases?* *All* of them contain illustrations of interest to a physician, but *not* of profit to his family.

"Very truly yours,
"Charles Roome Parmele."

Proceedings of Societies.

SOCIETY OF THE ALUMNI OF CHARITY HOSPITAL.

Meeting of March 6, 1895.

The President, Dr. Adolph Rupp, in the Chair.

Dr. E. Pierre Mallett, Secretary.

Gallstone.—Dr. D. E. Walker reported the case of a large gallstone causing fæcal obstruction at the ilio-cæcal valve. The patient gave a history of having had an attack of what she called congestion of the liver some two years before. She had been comparatively well until a few days before the examination, when she had been taken with an attack of gallstone colic, and in about two days had begun to have fæcal vomiting, without much change in the pulse or general condition. The speaker had concluded there was fæcal obstruction, probably from adhesions about the gall bladder and stomach, as she complained constantly of pain in that region. An incision was made at the right of the median line in the region of the gall bladder, and a number of adhesions were found connecting the gall bladder, stomach, and intestine. A gallstone two inches long and an inch and a quarter broad was found at the ileo-cæcal valve, completely closing the intestine. The small end was directed downward and the stone had acted like a ball valve. It was slipped upward and removed through an incision in the intestine. It showed some blood clots on its large end, which presented a rough surface. This led him to suppose that it had probably been attached to some place in the intestine and had broken loose. The patient had recovered without any special difficulty.

The President stated that the case seemed particularly interesting from the fact that it illustrated that simple irritation did not give rise to inflammation of the vermiform appendix, for the production of which a specific poison seemed essential. In this case the gallstone did not seem to have given rise to any particular trouble, except that of simple local impaction discovered by the operator.

Dr. Brooks H. Wells asked as to the composition of the stone.

Dr. Walker stated that it was almost pure cholesterin. The history indicated that there had been an ulceration through the gall bladder into the intestine, and the condition found about the gall bladder would indicate that such was what the patient had gone through with, and that during that ulceration the large mass of adhesions around the gall bladder and stomach was formed.

Carcinoma Mammæ.—Dr. Wells presented the history of a thin, anæmic woman, fifty-seven years old, who had first noticed a small lump in her right breast eight years before. This lump had remained almost stationary, caused her no pain, and did not seem to interfere with her general condition. When the speaker saw her she presented a freely movable, stony, hard nodule, of the size of a hickory nut, just beneath the slightly retracted nipple of the right side. There was no appreciable thickening or enlargement of the lymphatics in the axilla or beneath the edge of the pectoralis major. The breast was removed, together with the overlying skin, the pectoral fascia, part of the pectoral muscle, and the axillary contents *en masse.* These included the contents of the space between the clavicle and the upper border of the pectoralis minor muscle and of that between the pectoralis major and the deltoid just below the clavicle. Convalescence was rapid and uneventful. A microscopic examination of the shot-like glands removed showed carcinomatous infiltration everywhere. This proved very certainly that the disease had extended beyond the reach of any justifiable surgical measure and that recurrence was inevitable. A condition like the one reported was to be expected in any case where the primary cancerous nodule had existed for any considerable time, and the case strongly exemplified the fact that surgical interference to be successful must be *early.*

Ovarian Cyst with Twisted Pedicle.—Dr. Wells had first seen this case in consultation with Dr. Mallerson and Dr. Westerfield. The patient had had a tumor recognized as cystic for some months. Three days before, she had suddenly been taken with very severe pain in the abdomen, the tumor had rapidly increased in size, and she had had signs of peritonitis. When she was seen the pulse was rapid and wiry, the temperature 102·5° F., the abdomen above the umbilicus tympanitic and everywhere excessively tender. She had had large doses of morphine to quiet pain. The diagnosis was made of death of the cyst from twisted pedicle and beginning peritonitis, and an immediate operation was advised. On opening the abdomen, the cyst was found black and with a peculiar stiff feeling to its walls, which were filled with coagulated blood. There were universal recent adhesions, not only to the cyst wall, but over the entire contents of the abdominal cavity, which also contained a considerable amount of pink, flaky serum. The cyst was removed and the visceral adhesions were broken up by the hand passed into the abdominal cavity. The peritoneal cavity was washed out, a gauze drain inserted, and the wound closed. There was little shock. No opiate was allowed, and the bowels were moved by fractional doses of calomel after twenty-four hours. The temperature and pulse became normal after forty-eight hours; the gauze drained profusely for four days, and was removed on the sixth. The wound healed throughout aseptically, and the patient was allowed to get out of bed on the sixteenth day. She was now apparently perfectly well.

The President asked the speaker if he had meant to say that in such cases as the one he had reported, the operation was not worth doing.

Dr. Wells said the point he had wished to make prominent was that in cases of carcinoma of the breast the only safe operation was an extensive and early one.

The President spoke of having been advised, when at Charity Hospital, not to cut away too much skin in operating for malignant tumors of the breast, advice opposed to that advocated by Fergusson long ago, and also opposed to the general custom of the present time. A case of his in which Dr. Frederick Lange had recently operated all the suspected tissues had been thoroughly removed, and the skin cut away quite extensively, but in spite of all this cancer had developed in the cicatrix soon after. As to a point in diagnosis and prognosis, he cited a point made by Billroth, who had found benign tumors in a certain class of large-breasted, stout, hysterical women; such tumors did not need to be removed, and the women might be spared the mortification of mutilation. One should be careful not to delay necessary operations, but one ought to be sure of the diagnosis before operating.

Dr. R. C. Newton spoke of a tumor that had been removed from a young woman. She had since married and had a child, and the tumor had proved to be quite harmless, but from anything the speaker could tell it might have been carcinomatous.

Dr. J. Blake White spoke of medicinal treatment for tumors of the breast, and cited a case of his where the tumor when first seen had been of the size of a hen's egg and very indurated. The patient was thin, anæmic, and nervous. The speaker gave her chloride of gold, and at the end of six months the tumor was of less than half its former size, had lost its indurated character, and had softened materially, and the speaker felt assured that within sixty or ninety days more it would entirely disappear. He spoke of the chloride-of-gold treatment having been used in another case where the growth had entirely disappeared. He thought the great point was accuracy of diagnosis, for if the growth was undoubtedly malignant, internal treatment would not avail. Nevertheless, he had seen cases, presumably malignant, which had been benefited. But in such growths as he had described, that appeared to be malignant but were not, an operation would not be required. He thought a conservative course to follow would be to place the patient upon such internal treatment as had been described, and if in a reasonable time the growth was not affected thereby, recourse to the knife would be the proper procedure.

Dr. Wells said that in the case reported by the president the recurrence of the disease in the cicatrix might have been caused by infection from the fascia or part of the pectoralis muscle or some portion of fat that had not been removed. There were often tiny cell nests scattered through the fatty tissue underneath the skin and in the fascia or between the fibers of the pectoralis muscle. As to Dr. White's remarks, of course one would not advocate an operation unless he was reasonably sure of his diagnosis. The age of the patient was an important factor; in a woman over thirty-five one looked with suspicion on a new growth of any kind.

Movable Spleen in an Infant, caused by Malarial Enlargement.—Dr. Charles J. Proben had presented the case at a recent meeting of the society. An infant, aged thirteen months, a foundling, on admission to the hospital, had been vigorous, well developed, and without any apparent blemish. After some time the babe lost flesh and became anæmic, cross, and irritable. Its miserable condition was attributed to defective nursing, and it was given to another nurse, with the same result. Aside from the extreme irritability and frequent rises of temperature, nothing was noticed until the nurse discovered a swelling on one side of the abdomen. This unilateral swelling, after a careful examination, was pronounced to be a large hypertrophied spleen, occupying one half of the abdominal cavity. The osseous system of the infant revealed certain changes caused by rhachitis. The author thought very large spleens in infants, after excluding neoplasms, especially carcinoma, sarcoma, also cysts and abscesses, were due to three causes: leucocythæmia, malarial poisoning, and syphilis. He thought enlargement of the spleen in children could only be positively diagnosticated by palpation; percussion was too uncertain and dubious. In the case reported leucocythæmia had been excluded by the absence of large glands, either apparent or hidden, also by a microscopical test of the blood. Syphilis had been excluded by the absence of any lesions of the skin, mucous membrane, teeth, nose, etc. The general adenopathy was attributed to the rickety condition of the infant. Malarial fever seemed the only feasible conclusion, judging partly from the symptoms and partly by exclusion. A microscopical examination of the blood showed pigmented bodies, translucent oval bodies, and rosette-shaped bodies in the red blood cells, also on one occasion a crescent-shaped body. The presence of the plasmodium and the large hypertrophic condition of the spleen made the case very interesting, considering that such cases were rare in New York. A proper course of quinine administration was instituted, the patient receiving two grains of the sulphate three times a day, alternating it at times with the liquor potassii arsenitis. After two months the symptoms, with the fever, began to disappear, the patient improved in health, the spleen diminished until the abdominal swelling disappeared, and the spleen, about four inches long by two inches and a half wide, could be felt feebly movable in the abdominal cavity, freely displaceable up and down, the contour suggesting a splenic tumor loosened from its attachments. The author thought this a movable hypertrophied spleen, and had arrived at the following conclusions: 1. That this displacement could alone be attributed to the immense size, due to malarial poisoning. 2. That the cause of the malarial infection could not be ascertained, whether fœtal or later acquired from the nurse. 3. That a microscopical blood examination in cases of a doubtful character was requisite, and that even where it was negative or dubious one must resort to the therapeutic test, large doses of cinchona alkaloids, preferably quinine. 4. That intermittent fever in infants in New York city was rare; where the microscope could not decide, therapeusis must. 5. That enlarged spleen in infants was not alone due to malaria, but more frequently to rickets and other conditions. 6. That palpation of the spleen was the only feasible and certain method of diagnosis. 7. Symptoms of paludal poisoning were frequently referable to the gastro-intestinal canal, and less often to the lungs, which responded to quinine. 8. The stages of chills and sweating were absent in infants. 9. A fever of periodical character, with enlarged spleen, other causes than malaria being excluded, demanded quinine.

Dr. White spoke of a case of enlarged spleen that he had seen in a child seven years old. The enlargement had rapidly disappeared under the use of arsenic, quinine, and iron. He believed such cases were rare.

Dr. Newton said cases had been reported that were congenital, due to malarial disease in the parents, and he thought it extremely likely that the case reported by Dr. Proben was of such a nature. The child was not in malarial surroundings when the temperature rose. He spoke of a case of splenic enlargement under his observation. In the blood there was a large preponderance of the white corpuscles. It was a case of splenomedullary leucæmia and offered many interesting phases for study.

Dr. Proben stated that in looking over the literature on the subject he remembered seeing three cases of fœtal malarial disease. One was that of a woman suffering from malarial poisoning, who noticed in the last month of pregnancy a fluttering of the abdomen every night. When the child was born it had an enlarged spleen. It had seven paroxysms, and was put on the use of quinine and improved. Two other similar cases were reported. Some observers, when they got a case of enlarged spleen, thought it was due to syphilis, but these cases had been cured with quinine.

Dr. Carr, who had examined the case, mentioned in a letter that the case was of interest from the fact that very large spleens were rare in New York, and that the plasmodium had been found to corroborate the diagnosis.

Ringed Eruptions; a Study in Differential Diagnosis.—Dr. George Thomas Jackson, in a paper with this title, stated that the eruptions that appeared, either habitually or occasionally, in a ring shape, were trichophytosis corporis, syphilis, psoriasis, erythema multiforme, seborrhœa sicca, pityriasis maculata et circinata, and rarely favus of the body in its so-called herpetic stage. These eruptions bore so strong a resemblance to one another at times that it was hard for even experts to make a positive diagnosis. He stated that an annular eruption was one having a well-defined raised border surrounding a patch of skin, normal or nearly so, or in which active disease had ceased. In all eruptions of the ringed variety, if two or more rings appeared near each other, they were apt to run together and form figure-of-eight or gyrate lesions, from the disappearance of the borders at the part where contact took place. Trichophytosis was characterized by a well-defined, slightly raised border composed either of vesicles, rarely seen, or pustules or papules, slightly scaly, or of small crusts, the remnants of the vesicles or pustules. Within this ring the skin might show no change or be slightly scaly, the scaliness diminishing toward the center. The eruption usually itched slightly. By examining the scales under the microscope, the fungus would be found. The disease differed from syphilis in being accompanied with itching, in having a narrow border made up of scales, vesicles, pustules, or crusts, in its scaly center, in being superficial, and in its microscopical character. Syphilis at times showed itself in rings. These did not cause the part to itch or burn. It had a well-marked, rather broad, slightly elevated border, which was infiltrated, raw-ham-colored, and composed of scaling papules or nodules. The center of the ring might be normal, scaly, crusted, superficially or deeply cicatrized, reddened, or pigmented. Sometimes the nodules of the border would break down and ulcerate. Erythema multiforme was so unlike syphilis that it could hardly be mistaken for it. Seborrhœa corporis was situated on the chest and between the shoulder-blades, and there would also be found seborrhœa of the scalp. It had a greasy feel, and the raw-ham color of syphilis was absent. Pityriasis rosea was distinguished from syphilis by the occurrence at the same time of both macules and rings, by its lighter color, and by the chamois-leather look of the rings. Psoriasis formed rings by clearing up of the centers of old patches. The border of the ring was usually quite broad, slightly if at all thickened, its color was pinkish red, and the scales that covered it were large and silvery. The center of the ring was composed of normal skin, perhaps a little red. The scaling would be commensurate with the redness. It was commonly itchy. Erythema multiforme or erythema exudativum formed rings by the absorption of the centers of the large tubercular lesions or patches. The border of the ring was raised and its color red, the redness capable of being made to disappear on pressure and of returning promptly when the pressure was removed. The center of the ring was red or discolored on account of the partially absorbed exudate. Another form was known as erythema or herpes iris, in which there was either a purplish spot surrounded by a raised whitish ring containing fluid and outside of this a red areola, or a vesicle in the center with a purplish zone about it, a raised whitish ring containing fluid, and a red areola outside of all, or a central bulla with one or two rings of vesicles about it. Seborrhœa sicca, or seborrhœal eczema, was the lichen annulatus of Wilson and the seborrhœa corporis of Duhring. It formed ring-shaped lesions on the scalp and trunk. Their favorite sites were the chest and back between the shoulder-blades. The rings were of large and small size, and there were fatty plates with more or less redness; the border of the ring might be broad or narrow. If it was broad, it would be formed of greasy crusts upon a reddened base; if it was narrow, it would be made up of a number of red points, the open mouths of the follicles of the skin; or the border might be narrow and made up of fatty crusts. The skin in the neighborhood was commonly greasy, and the inclosed area of skin looked as if varnished, being glazed and yellow. The ring shape of favus was not commonly seen. It bore a close resemblance to ringworm, but after a short time a well-marked favic cup developed. Lichen-planus papules, when they had crowded together into a patch, formed into rings by the absorption of their central papules. The ring was never of large size; its color was the peculiar violaceous color of lichen planus; the center was depressed, and the whole was scaly.

Dr. E. B. Bronson said that the most interesting thing in connection with the ringed eruptions related to their determining factors. Why should some eruptions be ring-formed and others not? The annular form was always due, probably, either to a parasitic or to a neuropathic factor. Perhaps the simplest type of this form was ringworm. In this case the disease began as a minute spot or papule, and as it gradually advanced at all points of the periphery alike while healing in the center, by the law of chances there would result sooner or later a ring. The parasitic winged eruptions always developed in this way. When the eruption began as a ring it was doubtless the result of a neuropathic cause, as, for example, in annular erythema. But in some neuropathic eruptions also an annular form was acquired by peripheral extension, the same as in the case of the ringworm. This was the case in erythema iris. The ringed eruptions of syphilis might develop in either way. When the eruption began as a ring it could hardly be explained otherwise than as a neuropathic effect. Whether, when it began as a papule and afterward became a ring through healing at the center and advancing at its circumference, it was due to a superficial growth and extension of the parasitic element of the disease, was a question not easily answered. Usually, however, in the annular syphiloderm the ring was not complete. At some point of the periphery there was apt to be a clear or reentrant portion. Psoriasis was often ring-formed, and apparently might be produced in either way. Usually it was developed from an orbicular patch. But various curvilinear or gyrate forms that sometimes seemed to occur primarily indicated the tendency to annular formation, and here and there a more or less perfect ring might be formed that was not due to healing of the center of a patch. This tendency seemed to imply one argument in favor of the neuropathic origin of this disease as against the parasitic theory. Finally, eczema sometimes showed in places a tendency to form rings with more or less clear interiors. It was mostly in the parasitic forms that this occurred, but a similar effect might be due to nerve influence. The writer of the paper had omitted to refer to lupus erythematosus, in which the eruption was sometimes annular. Here the ring form, though in a disease pretty certainly neuropathic, was produced by peripheral extension.

Dr. John A. Fordyce stated that when the students in his clinics saw a ringed eruption their first impression generally was that it was ringworm, before the fact was brought to their attention that many other cutaneous diseases assumed the same outlines. The annular syphiloderm, especially about the face and neck in a subject affected with seborrhœic eczema, very frequently closely resembled tinea circinata. Ringworm, on the other hand, did not always take on an annular form, but sometimes occurred in the form of scaly patches like eczema. In exceptional instances, lupus erythematosus, as had been stated by Dr. Bronson, lupus vulgaris, and even some varieties of cutaneous cancer assumed circular outlines. Impetigo herpetiformis, an exceedingly rare disease, also occurred in the form of rings. He agreed with Dr. Bronson that the majority of ringed eruptions were parasitic; the peripheral extension of the eruption was due to the fact that the parasite in its growth sought new soil, while the inflammatory reaction disappeared as the parasite invaded new territory. The ringed forms of erythema, on the contrary, were probably owing to a vascular disturbance brought about by the nervous mechanism governing limited areas.

The President asked whether the specific germs of inflammation might not be admitted as a third factor in addition to the two enumerated by Dr. Bronson. He cited Dr. R. W. Taylor, who had stated that possibly streptococci and staphylococci had a good deal to do with infiltrations and ulcerations of syphilis; if this was the case, why not with other skin diseases, such as those that had been discussed?

Dr. Jackson stated that this was an age of micro-organisms. There were some dermatologists who, whenever they saw a ringed eruption, always looked for a parasite. He was not yet prepared to accept the parasitic theory of most ringed eruptions, as proof of such origin was wanting. He had not mentioned lupus erythematosus and epithelioma, because they were uncommon. In regard to the president's question, he knew the theory existed that parasites caused these changes, and some authorities thought that a great many of the ring lesions of syphilis were not due to the syphilis itself, but to some micro-organism. It was best to be slow in accepting such radical views.

Book Notices.

Degeneration. By Max Nordau. Translated from the Second Edition of the German Work. New York: D. Appleton & Co., 1895. Pp. xiii–560. [Price, $3.50.]

At the present day, when our theaters are presenting plays in which adultery, seduction, bastardy, opium-eating, and fornication are prominent features in the career of some of the *dramatis personæ;* when "living pictures" are constituted by women whose features proclaim the harlot, and whose fat, bloated abdomens, atrophied calves, and adipose thighs and arms violate the fundamental principles of anatomical beauty; when the ballet caters to pornographic instincts by its coarse suggestiveness; when books by vagueness or open reference exploit the beneficence of salaciousness—the advent of such a work as this is a matter for rejoicing. The earnestness with which the author has written, and his care to present plentiful data to sustain his theses, are sure to make his book receive wide attention and much discussion.

A pupil of Lombroso, to whom the book is dedicated, Nordau justly accords to Morel credit for the introduction of the notion of degeneration, and he calls attention to the fact that degenerates are not always criminals, prostitutes, anarchists, and pronounced lunatics, but are often authors and artists. Some of these degenerates have come into extraordinary prominence in literature, music, and painting, and are revered as creators of new arts and heralds of future artistic canons. As the powerful suggestions of books and works of art on the masses produce the ideals an age entertains of morality and beauty, the productions of degenerates are likely to have a permanent influence on youth and create a sect of mental and moral astigmatics.

But in this latter concept it seems that the author is at fault. Lincoln, with ready aphorism, said something to the effect that it was possible to "fool" all the people sometimes and some of the people all the time, but that no one could fool all the people all the time; so it is unlikely that any of the prophets of new artistic or literary departures will be able to do more than raise up a limited and temporary following, though there is no doubt that their following will be among those impressibles that might have been led by a good rather than a bad example.

Throughout, Dr. Nordau attempts a scientific criticism that does not base its deductions upon the purely accidental, capricious, and variable emotions awakened by a work of art, a piece of music, or a book, emotions that depend upon the temperament and mood of the individual, rather than upon the psycho-physiological elements from which the work sprang. He is no iconoclast, seeking to destroy the true ideals, but a Moses who would break up the clay that constitutes the idols worshiped by the multitudes.

In his first section he considers what is embodied by the phrase *fin de siècle*, and this is the weakest part of the book. He objects to the simile that a century is a kind of living being, and calls this a childish anthropomorphism or zoomorphism. But since the dawn of literature the idealization of time as a sentient being has existed, and if a year may be considered as partaking of the characteristics of human life, having its birth, growth, and death, why not a century? It seems as if this chapter might have been advantageously omitted, and the second chapter, on the symptoms, in which the author launches his thunderbolts at the vagaries of *coiffure* and modes, is not to be taken seriously. It may be considered that disconnected and antithetical effects in house-furnishing are the consequences of crude or imperfectly developed taste rather than manifestations of mental aberration or degeneration. And it seems too sweeping to assert that an artist arranges, *à la* Bayreuth, a concert in a totally darkened hall, and thus "delights those of the audience who find opportunity, by happily chosen juxtapositions, to augment their musical sensations by hidden enjoyment of another sort." Not only does the Philistine regard these as passing fashions, but the psychiatrist is not likely to look upon them much more seriously, even if he accepts Morel's definition of degeneracy: "A morbid deviation from an original type. This deviation, even if at the outset it was ever so slight, contained transmissible elements of such a nature that any one bearing in him the germs becomes more and more incapable of fulfilling his functions in the world; and mental progress, already checked in his own person, finds itself menaced also in his descendants."

After reviewing the physical stigmata of degeneration, the mental stigmata of lack of sense of morality, of right and wrong, of unbounded egoism, emotionalism, mysticism, and impulsiveness are referred to. "The degenerate finds that it is easier and more convenient to allow his brain centers to produce semi-lucid, nebulously blurred ideas and inchoate embryonic thoughts, and to surrender himself to the perpetual obfuscation of a boundless, aimless, and shoreless stream of fugitive ideas, and he rarely arouses himself to the painful attempt to check or counteract the capricious and, as a rule, purely mechanical association of ideas and succession of images, and bring under discipline the disorderly tumult of his fluid presentations. On the contrary, he rejoices in his faculty of imagination, which he contrasts with the insipidity of the Philistine, and devotes himself with predilection to all sorts of unlicensed pursuits permitted by the unshackled vagabondage of his mind; while he can not endure well-ordered civil occupations requiring attention and constant heed to reality." This is an excellent portrait of the degenerate, as will be recognized by every physician who has had much to do with the mentally affected. Among the peculiarities that are manifested by degenerates are tormenting doubts, a search for inaccessible first causes of phenomena, a yearning to expose the riddle of the universe, to search for the philosopher's stone, to square the circle, or to discover perpetual motion. There is an incapacity for adaptation to existing circumstances, a rebellion against conditions and views of things that are felt to be painful because they impose the duty of self-control that is difficult or impossible because of organic weakness of will. The degenerate would improve the world and devise plans for making mankind happy.

Every psychiatrist knows the truth of Legrain's dictum that the degenerate may be a genius, for a badly balanced mind is capable of the highest conceptions, while it also displays traits of meanness and pettiness that are all the more striking because they coexist with the most brilliant qualities. Nordau says: Let us imagine a Schopenhauer who had written no astounding books, and we should have before us only a repulsive *lusus naturæ*, whose morals would necessarily exclude him from all respectable society, and whose fixed idea that he was a victim of persecution would point him out as a subject for a madhouse. Unlike Lombroso, who has said that highly gifted degenerates are an active force in the progress of mankind, Nordau considers that they corrupt, delude, and exercise a baneful influence, leading men along paths to new goals which are abysses or waste places.

Lombroso has said that if they are painters their predominant attribute will be the color sense. And the curious style of some recent painters becomes intelligible in view of the researches of Charcot and his pupils into the visual derangements in degeneration and hysteria.

The ætiology of degeneration is the addiction to narcotics and stimulants, such as alcoholic drinks, tobacco, opium, cannabis indica, and arsenic, the use of tainted foods, the absorption of organic poisons, such as those of paludal fever, syphilis, tuberculosis, and goître. Then the effect of a large town on the human organism in consequence of the inhalation of organic detritus, the eating of stale, adulterated, or contaminated food, and the constant nervous excitement diminish the vital powers. Hysteria is often due to fatigue, and there is evidence that shows degeneration may be due to the same cause. Our simplest activities involve an effort of the nervous system and a wearing of tissues; every civilized man performs to-day from five to twenty five times as much work as was required of a man half a century ago. New discoveries and progress have taken civilized humanity by surprise, so that it has had no time to adapt itself to its changed conditions of life.

The author then considers mysticism as a principal characteristic of degeneration. The preraphaelite fad is reviewed, and its evolution into symbolism, a cult that professes to understand a word (or series of words) expressing, instead of a fact of the external world or of conscious thought, an ambiguous glimmer of an idea that does not force the reader to think, but allows him to dream, and hence brings about no intellectual processes, but only moods. Numerous quotations are given from the writings of symbolists that show types of degeneration.

Tolstoism, Wagnerism, the writings of Peladan, Maeterlinck, and Ibsen, the works of the "decadents" and "æsthetes," including Oscar Wilde, whom the Marquis of Queensbury has referred to as a sexual pervert, and the writings of Nietzsche and Zola, all betray evidences of degeneration.

It is impossible within the compass of this review to give any good idea of the immense amount of reading the author has done, or of his care to substantiate his assertions by facts. His conclusions must be read to be appreciated.

The book is always interesting, and, while occasionally the author may seem extravagant in statement, such slips are rare.

The translation is satisfactory; so good, in fact, that we do not appreciate the reason for omitting the translator's name. On page 109, "typhus" should read *typhoid*. On page 310 the expressions "wagon-lit" and "sleeping" [*car* omitted] are transposed.

There is no doubt that this work deserves as much attention in this country as it has received in Germany and England.

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M. D., New York City. In Twenty Volumes. Volume I. Diseases of the Uropoietic System. New York: William Wood & Co., 1895. Pp. vi–2 to 737.

In view of the many advances that have been made in medical science during the past decade, advances that have, as the editor states, recast the science of medicine, it is appropriate that the old systems should be rewritten so as to eliminate theories and substitute facts. To do so in a work like this is, at first blush, an apparent audacity; because it is possible that before the last volume is published the first will have taken its place among the milestones of medical progress, suitable for occasional reference but not for actual use. The wide scholarship and the ability of the editor, however, have guarded against such contingencies; for his first volumes will treat of those topics that are in a fairly complete state as regards our knowledge of ætiology, diagnosis, and therapeusis, while the later volumes will consider the infectious diseases as well as those other morbid states now undergoing special investigation.

This volume is devoted to the diseases of the uropoietic system. Dr. Francis Delafield is the author of the first section, on diseases of the kidneys. He briefly reviews the anatomy of these organs, gives several of the better-known classifications of the nephropathies, and calls attention to the fact that the tendency of authors has been to look at these diseases from two points of view, that of the symptoms and that of the lesions. He shows that a classification based on the part involved, while anatomically correct, is clinically insufficient, and he advocates a classification according to the nature of the morbid process. The quantity, specific gravity, and constituents of the urine are briefly reviewed. The factors causing albuminuria are mentioned, and the conditions in which there may be albuminuria without renal disease are described. It is a surprise to find no reference to the investigations of Bouchard, Herter, and others in the section on uræmia, for the symptoms of which the author thinks there is no satisfactory way to account. Bouchard seems to have proved conclusively that uræmia is a complex poisoning to which, in unequal proportions, all the poisons introduced normally into the organism or found therein physiologically contribute. And his experiments seem to explain the anomalies that apparently puzzle Dr. Delafield and cause him to take his agnostic position on this subject, which is far from being a twentieth-century conception. The rest of this chapter is a very interesting exposition of the medical diseases of the kidney, the author manifesting a conservative position regarding all moot points. Thus, in the section on puerperal eclampsia ten theories regarding its ætiology are referred to, but to none of them does the author commit himself.

Mr. Reginald Harrison is the author of the chapters on surgical diseases of the kidneys and the bladder, and the accomplished surgeon of St. Peter's Hospital has performed his work in his usual thorough manner. He advances good reasons for accepting the colloid theory in regard to the formation of renal calculi, and he prefers the lumbar operation for their removal. This author reports some interesting cases of foreign bodies in the bladder, and he recommends the use of the electric cystoscope for exploration in these and other vesical diseases. The advantages of lithotrity and perineal and suprapubic cystotomy, as well as the particular indications for each of these operations, are judiciously and fully discussed.

The chapters on diseases of the prostate and of the male urethra are by Dr. G. Frank Lydston. His review of the question of prostatic hypertrophy is one of the best articles on that important topic that we have read, and this is also true of the article on stricture. The author properly indorses Otis's method of internal urethrotomy as the simplest, safest, and most successful way of treatment of penile strictures.

Mr. E. Hurry Fenwick is the author of the chapter on diseases of the urine, in which he states it was deemed expedient to revert to the old-fashioned custom of raising a symptom to the rank of a disease. Hæmaturia, pyuria, accidental albuminuria, cystinuria, phosphaturia, oxaluria, polyuria, and chyluria are thoroughly discussed.

That Dr. Howard A. Kelly is the author of the chapter on diseases of the female bladder and urethra is sufficient evidence of the thorough manner in which those maladies are considered.

The articles in this volume are well written and deserve general attention.

On Digestive Proteolysis: being the Cartwright Lectures for 1894. Delivered before the Alumni Association of the College of Physicians and Surgeons of New York. By R. H. Chittenden, Ph. D., Professor of Physiological Chemistry in Yale University. New Haven: Tuttle, Morehouse, and Taylor, 1895. Pp. xiv–187.

This volume is virtually a reprint of the Cartwright Lectures for 1894, that were originally published in the *Medical Record*, and are now reissued in compliance with many requests for their publication in a more convenient and accessible form.

These lectures consider the many questions concerned in the digestion and utilization of the proteid food-stuffs, with particular reference to the chemical and physiological characters of the products formed, and the general features of proteolysis.

The volume merits careful study, and gives a clear idea of the digestive process as applied to the essential food-stuffs.

Materia Medica and Therapeutics for Physicians and Students. By John B. Biddle, M. D., Late Professor of Materia Medica and General Therapeutics in the Jefferson Medical College, Philadelphia. Thirteenth Edition, revised, rearranged, and enlarged. With special reference to Therapeutics, Toxicology, the Physiological Action of Medicines, and containing all the Preparations and Remedies described in the United States Pharmacopœia of 1890, to which the work has been made to conform. By Clement Biddle, M. D., Medical Corps, United States Navy. With Numerous Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1895. Pp. 5 to 714. [Price, $4.]

The editor states that in this edition he has preserved the same order that was followed in preceding editions in the consideration of each drug or remedy; and as this edition is intended to include all the articles and preparations considered in the United States Pharmacopœia of 1890, a number of drugs that were made official by that revision have been added to the list formerly described in this work, also a number of drugs and preparations have been dropped. The editor has added a number of unofficial drugs that are more or less generally employed. These changes have added some fifteen pages to the work proper, and about sixty pages to the appendix.

The labor of revision has been carefully performed, and the work is fully up to date. Perhaps it would have been better to prefix "diphtheria" to "antitoxine," as there are tetanus and other antitoxines. By the way, tetanus antitoxine is not mentioned, and there is no reference to thyreoid extract. Orexine and piperazine have so signally failed to fulfill the allegations that were made for them that their consideration might be omitted from future editions.

BOOKS, ETC., RECEIVED.

Medical Gynæcology. A Treatise on the Diseases of Women from the Standpoint of the Physician. By Alexander J. C. Skene, M. D., Professor of Gynæcology in the Long Island College Hospital, Brooklyn, N. Y.; formerly Professor of Gynæcology in the New York Post-graduate Medical School, etc. With Illustrations. New York: D. Appleton & Co., 1895. Pp. vi–529. [Price, $5.]

Degeneration. By Max Nordau. Translated from the Second Edition of the German Work. New York: D. Appleton & Co., 1895. Pp. xiii–560. [Price, $3.50.]

The Medical Annual and Practitioner's Index: A Work of Reference for Medical Practitioners. By Various Writers. 1895. Thirteenth Year. Bristol: John Wright & Co. Pp. lxxx–626. [Price, 7*s.* 6*d.*]

Cod-liver Oil and Chemistry. By F. Peckel Moller, Ph. D. London: Peter Moller. New York: W. H. Schieffelin & Co., 1895. Pp. cxxiii–508.

The Evolution of the Diseases of Women. By W. Balls-Headley, M. A., M. D. (Cantab.), F. R. C. P. (Lond.), Lecturer on Midwifery and the Diseases of Women at the University of Melbourne, etc. London: Smith, Elder, & Co. Melbourne and Sydney: George Robertson & Co., 1894. Pp. xx–375. [Price, $3.75.]

Enlargement of the Prostate. Its Treatment and Radical Cure. By C. W. Mansell Moullin, M. A., M. D., Oxon., F. R. C. P., Surgeon to and Lecturer on Physiology at the London Hospital, etc. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. viii–176. [Price, $1.50.]

Seventeenth Annual Report of the State Board of Health of the State of Connecticut, with the Registration for 1893 relating to Births, Marriages, Deaths, and Divorces. 1895.

Twentieth Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year ending June 30, 1892.

Roosevelt Hospital, New York. Twenty-third Annual Report from January 1, 1894, to December 31, 1894.

Proceedings and Addresses at a Sanitary Convention held at Union City, Michigan, October 25 and 26, 1894.

Chloroform in Labor. By Edwin Ricketts, M. D., Cincinnati. [Reprinted from the *Virginia Medical Monthly*.]

Early Diagnosis of Cancer of the Uterus. By Edwin Ricketts, M. D. [Reprinted from the *Cincinnati Lancet-Clinic*.]

A Case of Albuminuric Retinitis. By C. A. Veasey, M. D. [Reprinted from the *Philadelphia Polyclinic*.]

Pigmentum Chloralis Antisepticum. By John Broom, M. D. Read before the British Medical Association at the Annual Meeting in Bristol, August, 1894.

The Importance of Active Treatment of the Nasopharynx in the Treatment of Obstructive Diseases of the Lacrymal Passages. By C. A. Veasey, M. D., Philadelphia. [Reprinted from the *Ophthalmic Record.*]

Appendicitis. By George W. Gay, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal.*]

The Nomenclature of the Diseases of the Gastric-enteric Tract. The Report of the Committee of the American Pædiatric Society, May, 1894. [Reprinted from the *Archives of Pædiatrics.*]

The Therapeutical Employment of Ferropyrin. By W. Cubasch, M. D., of Stansstad. [Reprinted from the *Vienna Medical Press.*]

Free Hydrochloric Acid: Is its Absence from the Stomach a Sign of Cancer? By Richard B. Faulkner, M. D., Allegheny, Pa. [Reprinted from the *Journal of the American Medical Association.*]

Der Katheterismus der Ureteren. Von Dr. Leopold Casper, Berlin. [Sonderabdruck aus der *Deutschen medicinischen Wochenschrift.*]

Ueber das Gallanol. Von Dr. Max Joseph, Berlin. [Sonderabdruck aus der *Berliner klinische Wochenschrift.*]

Reports on the Progress of Medicine.

OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, A. M., M. D.

(*Continued from page 286.*)

The Retinal Changes in General Sepsis.—Herrnheiser (*Kl. Monat. f. Aug.*, May, 1894) asserts that in patients who have died of septic poisoning, preparations of the retina or chorioid of these eyes will show the presence of bacteria. In the cases examined by him he has found these changes in 32·6 per cent. valuable for diagnostic purposes though not of prognostic value. His experience has taught him that a considerable number of these patients who showed very marked retinal septic changes recovered entirely and with normal eyes. Hæmorrhages occur in these eyes shortly after the general infection has set in. The author believes that metastatic inflammation in the eye and retinitis septica are simply different degrees of intensity of the same process. He makes a distinction between retinal changes seen in septic processes and metastatic retino-chorioiditis, the latter being always due to an invasion of bacteria.

Is the Origin of Lenticonus to be sought in an Anomalous Condition of the Posterior Surface of the Lens?—Müller (*Kl. Mon. f. Aug.*, June, 1894) is of the opinion that there are lenses which refract light to a different degree in different segments, and that the difference in refrangibility varies from a few dioptres to twenty-four dioptres. In those cases in which posterior polar cataract or some other congenital opacity in the neighborhood of the posterior surface of the lens exists, the cause of the lenticonus must be regarded as congenital. In other cases the anterior surface of the lens is conical. In another series of cases abnormal shape of the nucleus is the cause. Müller advises that the name "lenticonus" be dropped, and that instead we employ the term "lens with double foci."

A Contribution to the Knowledge of Traumatic Scleral Staphyloma.—Duffing (*Archiv für Ophthal.*, xl, 2) gives the following results of his examination of an eye that had been injured by a double perforating wound. The scleral staphyloma was developed in the upper equatorial region and involved all the coats of the eye in this region. This traumatic staphyloma of the upper half of the eyeball consisted of entirely newly formed tissue furnished by the sclera, and this new tissue was as thick as the sclera. The fibers of the newly formed tissue have the same direction as those of the normal sclera, and merge imperceptibly with those of the normal sclera.

The Deposit of Rust in the Cornea.—Gruber (*Arch. für Ophthal.*, xl, 2) gives the following results of his investigations.

1. Particles of iron which have penetrated the cornea behave very differently at times according to their chemical qualities. Metallic iron and ferrum oxydulatum in their chemical relations are to be regarded as different, but oxide of ferrum is indifferent. Mixtures of both vary in their chemical irritating qualities according as the oxydulatum overbalances the oxide. The deposit of rust left in the cornea by a foreign bit of iron which has been extracted consists merely of hydrated oxide of iron, and chemically considered is harmless.

2. Even when the foreign particle has not entirely perforated the cornea, there is often a deposit of oxide of iron on the membrane of Descemet.

3. The deposit of rust outside of the foreign body follows very rapidly, so that within five minutes the deposit of the rust-ring begins.

4. The corneal epithelium exhibits great powers of resistance against the entrance of oxide of iron; very much greater than the substantia propria of the cornea.

Contribution to our Knowledge of Concentric Limitation of the Visual Field.—Groenouw (*Arch. für Ophthal.*, xl, 2) gives the following results of his investigations into the occurrence and nature of paradoxical dilatation of the visual field:

1. The extension of the visual field which has been concentrically narrowed in consequence of functional lesions depends within certain limits upon the degree of tension of the accommodation under which the visual field is measured. It is wider by relaxation of the accommodation than by tension of the same. The concentrically narrowed field is influenced by relaxation of the accommodation in exactly the opposite way from the normal field.

2. The paradoxical widening of the field can only be distinctly shown when the field has a more marked concentric narrowing.

3. The paradoxical widening of the field may best be demonstrated by measuring the field once while the patient accommodates for near point, and once in complete relaxation of the accommodation by the interposition of a proper convex glass. Partial relaxation of the accommodation, as a rule, is not sufficient.

4. Paradoxical widening of the field may be demonstrated in anæsthesia retinæ, copiopia hysterica, hemeralopia, spastic myopia, traumatic neuroses, tobacco amblyopia, etc.

5. The paradoxical widening of the field in accommodation for the far point disappears and its place is taken by the physiological widening of the field.

Unilateral Reflex Iridoplegia.—Heddams (*Arch. of Ophthal.*, xxiii, 1 and 2) refers to the five hitherto reported cases of reflex iridoplegia with a view to locating the lesion and defining the cause. If, as is usually supposed, the sphincter nucleus receives impressions on the one hand from centripetal pupillary fibers reaching it from both sides, and on the other hand from the accommodation nucleus of the same side, it is difficult to understand how with an affection of the sphincter nucleus the transmission of the accommodative impulse to the pupil may be possible while the transmission of the light stimulus is interrupted. Since in all the cases of unilateral reflex iridoplegia hitherto published the accommodation was intact, it seems natural to suppose a mechanical influence of the accommodative branch of the third nerve on the contraction of the pupil. Perlia's well-known scheme of the nuclei of the third and fourth nerves suggests another possible explanation—viz., that the nuclei do not stand in direct connection with each other, so that the sphincter nucleus can not be irritated by the accommodation nucleus, but that the iris branch of the third nerve is composed of two roots, one from the sphincter nucleus and one from the accommodation nucleus. The supposition of a fascicular instead of a nuclear affection would be acceptable to those who believe that the third nerve of one side arises in great part from the nucleus of the same side, and in lesser part from the nucleus of the opposite side. According to this explanation, the cause of the unilateral reflex iridoplegia may lie entirely in the centrifugal portion of the reflex arc for the light reaction. Then, there being a lesion of the branch from the sphincter nucleus, the reaction of the pupils to light would be the same as when the third nerve of this side was totally paralyzed. The dilated pupil would not respond to light directly or consensually; the other pupil would appear somewhat narrowed, and would react consensually more directly than directly, since the pupil of the paralyzed eye allows a greater amount of light to reach the retina.

The External Use of Quinine in Blennorrhoic Ophthalmia.—Reich-Hollender (*Arch. of Ophthal.*, xxiii, 1 and 2) used a quinine lotion experimentally in an obstinate case of gonorrhœal ophthalmia, and found that after the third day the discharge became innocuous, and within two weeks not a vestige of the inflammation remained. By making cultures he satisfied himself that the gonococcus Neisser was destroyed by a solution of quinine. He considers that the best way to employ quinine is in a solution containing hydrochloric acid. He believes it to be a specific in the ravages of the gonococcus. He makes a solution of 8 parts of quinine, 3 of dilute hydrochloric acid, and 720 of distilled water, and applies it every hour.

Injury to the Eyes from a Heavy Charge of Electricity.—Rivers (*Arch. of Ophthal.*, xxiii, 1 and 2) reports an interesting case of a man, aged twenty-five years, who received a current of five hundred and fifty volts, which passed through his arm as it was held on a level with his face. The eyelashes and eyebrows were entirely burned off. The skin of the eyelids was blistered. The ocular conjunctiva looked as if it had been painted with a strong solution of silver nitrate. The cornea in each eye looked like ground glass. Vision was reduced to perception of light. The treatment consisted of thorough and frequent irrigation by very hot boiled water, and a few drops of pure castor oil were instilled after each washing. Four times a day a solution of two grains of atropine sulphate to the ounce of bichloride solution (1 to 5,000) was used. The eyes were kept constantly covered by aseptic dry cloths. On the second day the opaque portion of the cornea began to separate, and by the end of the third day the eschar had been thrown off entirely in one eye, and on the fourth day in the other eye, leaving behind a perfectly clear structure in each eye. Fifteen days after the accident an examination showed: R. E., $\frac{20}{30}$; L. E., $\frac{20}{20}$. Jaeger No. 1 at six inches. The ophthalmoscope revealed a normal fundus.

Paralysis of the Superior Rectus and its Bearing on the Theory of Muscular Insufficiency.—Duane (*Arch. of Ophthal.*, xxiii, 1 and 2), after discussing the subject of paralysis of the superior rectus and its relative frequency, states that no insufficiency of an ocular muscle should be considered or treated simply as an insufficiency; we should rather try to rectify the often complex causes which lie at the root of it. We should in every case of heterophoria first eliminate the effect of accommodative errors by correcting the refraction; then determine, by careful and repeated examinations of the diplopia and the tendency to deviation in the different parts of the field of fixation, whether the heterophoria is a concomitant one, or varies in a way to indicate muscular paralysis or spasm. When in this way we have found the cause of the condition and the muscle which is at fault, and are convinced that the condition itself is a stationary and not a variable one, we are ready to rectify the anomaly, provided it really seems to be worth rectifying.

A Critical Comparison of Leber's Theory of Detachment of the Retina with the Diffusion Theory.—Raehlmann (*Arch. of Ophthal.*, xxiii, 1 and 2) considers that there are several points in this subject which can not well be explained by the theory that shrinking of the vitreous ruptures the retina and then detaches it, which may all be explained by the diffusion theory. This theory also explains the reattachment, with restoration of function, which occurs in exceptional cases. The process of detachment, as explained by the diffusion theory, is analogous to the occurrence of œdema or transudation in other parts of the body. Detachment of the retina occurs more frequently in individuals disposed to œdema than in healthy individuals. A careful consideration of the diffusion process, which plays the chief rôle in the shrinking of the vitreous, enables us to recognize the shrinking as a collateral symptom and the rupture as secondary.

A Triple Rotary Variable Prism.—Jackson (*Arch. of Ophthal.*, xxiii, 1 and 2) has devised a prism fitted to use in the ordinary trial frame. In this instrument the prisms are arranged so that the components increasing with the sine of the angle neutralize each other, and the components diminishing with the cosine of the angle are available for use. To effect this it is necessary that the rotary prisms start from the position in which they act together, producing their maximum effect, which must be exactly neutralized by an equivalent third prism. As the rotary prisms proceed from this position their effect diminishes with the cosine of the angle, and by so much leaves the third or fixed prism unneutralized to produce an increasing prismatic effect. This effect is at first very slight, but the increase is progressively more rapid until the rotary prisms have each passed through 90° and are made to neutralize each other. Continuing the movement of the rotary prisms, they begin to produce an effect in the same direction as the fixed prism, which effect increases now more slowly until after passing through 180° the maximum effect of the rotary prism is added to that of the fixed prism. The delicacy of the instrument for producing slight prismatic effects may be judged by the fact that the rotary prisms must each be turned through 9° to produce the first quarter centrad of prismatic effect.

Sixty-six Magnet Operations, with Successful Extraction of Particles of Iron from the Interior of the Eye in Fifty-three Cases.—Hildebrand (*Arch. of Ophthal.*, xxiii, 1 and 2) here gives in detail the results of sixty-six magnet operations, in sixteen of which good vision was preserved. In fifteen cases the foreign bodies were lodged in the anterior chamber, iris, or lens. The operations took a favorable course in all but one, where severe purulent inflammation had existed before the operation.

In fifty-one cases the iron splinters lodged in the vitreous chamber. In thirteen no foreign body was extracted. Of the thirty-eight cases in which the foreign bodies had been extracted, the following results were obtained:

Two led to enucleation; seven to phthisis bulbi. Six were lost sight of. Seven preserved the shape of the eye. Sixteen yielded a good result, more or less good vision being permanently restored. Cases which on discharge had tolerably good sight, but soft eyes or notable turbidity of the vitreous, were not counted among the successes, for these cases are apt to become worse later by detachment of the retina or shrinkage of the globe.

All the operations, except the first eight, were performed with a Hirschberg electro-magnet connected with a storage battery. The magnet should be introduced as near the foreign body as diagnosis and position permit; churning of the vitreous should be avoided.

The incision into the tunics of the eye should be meridional, and made with a narrow knife, after separation of the conjunctiva with a pair of scissors. Thin and pointed electrodes are to be avoided.

Whenever an iron particle in the interior of the eye is recognized with certainty, its extraction is indicated. Even those which seem firmly attached to the background, and cause neither irritation nor impairment of sight, are better out than in.

It is advisable to operate as soon as the presence of the foreign body can be ascertained. Even if it can not be seen or located, its removal should be attempted whenever it causes a severe inflammation. If it is impossible to locate the foreign body it is generally safer to wait until the media have cleared than to stir the vitreous extensively.

The diagnosis of the presence of a foreign body is of the greatest importance. The history of the injury, the instrument from which the piece flew off, will aid us considerably.

Air bubbles seen in the vitreous are a sure sign of the presence of a foreign body in the eye. If the vitreous is more cloudy in the lower part than in the upper, the patient should be examined in different positions of the head. The magnet itself is in some cases a serviceable means of localizing the foreign body. When passed over the sclera, no pain or tenderness is felt except when the electrode is in the immediate vicinity of the foreign body.

If a small wound of the conjunctiva has been produced by a foreign body, the wound should be examined with a platinum wire made aseptic by heat, in order to determine whether the sclera is perforated or not.

Prognosis —There are three hundred and twenty-two cases reported in literature in which the magnet has been introduced into the eye. In eighty the foreign body lodged in the anterior part, in the others in the vitreous.

Of the eighty cases, thirteen ended unfavorably on account of purulent inflammation which had set in before the operation. Seventy seven cases yielded a perfect result.

In seventy-four of the two hundred and forty-eight cases in which the magnet was introduced into the vitreous, the foreign body was not found. In one hundred and seventy-four cases the particles of iron were extracted. Twenty-three of these, or thirteen per cent., led to phthisis bulbi. Twenty-six, or fifteen per cent., required subsequent enucleation. Of thirty-four cases the results could not be obtained. The remainder, ninety-one cases, or fifty two per cent., gave satisfactory results—viz.: Twenty-nine cases, or sixteen per cent., retained the shape of the eye. Sixty-two patients, or thirty-six per cent., retained more or less vision.

Three Cases of Tubercle of the Iris.—Sandford (*Ophthal. Rev.*, May, 1894) reports three cases of this nature. The first two were examples of iritic tubercular deposits coincident with fresh lung trouble of a similar nature. The third case was one of primary iritic tuberculosis, the ciliary region, suspensory ligament, and apparently the lens itself being infiltrated by the tuberculous elements. The case occurred in a child, aged five years, of tuberculous parentage on both sides. There was no evidence of tuberculous mischief in any other organ. The tuberculous mass half filled the anterior chamber. The eye was enucleated and the patient was still living eight years later.

Intracranial Abscess arising from Caries of the Sphenoidal Cells.—Sandford (*Ophthal. Rev.*, May, 1894) reports a case of this kind in which the abscess caused double optic neuritis and subsequent post-neuritic atrophy, with complete blindness, about twenty-seven years before the patient's death, at the age of seventy-eight years. The abscess had penetrated the left orbit, causing proptosis, and also the outer wall of the skull by erosion of the bone.

A Rare Form of Intraocular Melanoma.—Griffith (*Ophthal. Rev.*, May, 1894) reports a case of some interest. The tumor was epithelial in nature and started in the tapetum nigrum of the retina. The ciliary body was not invaded, but merely displaced inward by the tumor pushing its way into the lymph space to the outer side of the ciliary muscle. He regarded the case as an instance of a melanoma springing from the retina, and conforming rather to the type of carcinoma than sarcoma.

Primary Melanotic Sarcoma of the Eyelid, with Report of a Case.—Zimmerman (*Ophthal. Rev.*, June, 1894) reports a case of this nature, occurring in a sailor, aged fifty years, with an exceptionally good personal history. Ten months before he came, he had noticed a swelling in the left upper lid, near the external canthus. There was slight itching, but no pain until shortly before the author saw him. The growth had been extremely slow until about a month before, but had since been rapid. There had been no hæmorrhage. The outer half of the left upper lid was the seat of a tumor of a dull bluish color, a centimetre long, oval, and of moderate height. It reached to the lid margin, but did not involve the conjunctiva. The skin was adherent and slightly nodular, but not eroded. There was no tenderness. The tumor was excised with a margin of healthy tissue, some points of doubtful character being destroyed by the galvano-cautery. The deformity was subsequently corrected by a plastic operation, which involved some change in the shape of the defect, and its closure by means of a sliding flap from the temple. Healing was prompt and uninterrupted. Eighteen months after the operation the conditions remained unchanged, and there had been no return. The tumor was found to be a melanotic spindle-celled sarcoma, incompletely encapsulated. The conjunctiva was not involved or distinctly changed, and the muscular tissue of the lid was not affected. The point of origin remained in doubt, but was probably within the Meibomian glands.

Optic Neuritis in its Relation to Cerebral Tumor and Trephining.—Taylor (*Ophthal. Rev.*, June, 1894) in this paper alludes to the fact to which Horsley had some time before called attention—namely, the subsidence of optic neuritis after operation undertaken with a view to the removal of cerebral tumor, even when the tumor was not removed. Similar observations had been recorded by Bruns and Erb, and in this paper it was intended to emphasize the fact that not only in cases in which a tumor was removed from the brain did the optic neuritis subside and the discs resume a normal appearance, but even in other cases of tumor in which the skull was opened, but the tumor not removed or interfered with further, a similar subsidence of the swelling of the discs took place. He urges, in conclusion, that even while freely admitting that a large cerebral tumor might be present without producing optic neuritis, and that optic neuritis might be present without cerebral tumor, there were yet certain cases of intracranial tumor in which the pressure inside the skull was the effective agent in producing what was known as optic neuritis.

Partial Suppression of the Employment of Collyria.—Wecker (*Ann. d'oc.*, June, 1894) lays down the following rules for the treatment of simple ulcers of the cornea: 1. Careful disinfection of the lids, especially the ciliary margins and the lashes. 2. Curetting the ulcers with careful irrigation. 3. Subconjunctival injection in the vicinity of the infiltrated parts of a few drops of a solution of sublimate (1 to 1,000). 4. Rigorous application of the occluding flap without the employment of any collyrium.

Considerations on the Cortical Visual Center.—Vialet (*Rec. d'ophthal.*, June, 1894) reports two cases which seem to confirm the theory that a circumscribed lesion of the internal surface of the occipital lobe may cause persistent hemianopsia, and to justify the localization of the visual center of perception in the three convolutions of this internal surface. The cortical zone in which the visual fibers terminate is not as circumscribed as hitherto believed by Henschen, who locates it exclusively in the calcarine fissure.

Simple Muscular Advancement in Cases of Moderate Strabismus.—Motais (*Rec. d'ophthal.*, June, 1894) recommends this operation in the following cases: 1. In paretic squints of from five to fifteen degrees. 2. In the squint of very young children. 3. In the unsatisfactory results of previous tenotomies, when the persistent deviation is not more than twelve degrees and resists all optical means for its relief. 4. In compound squint when the superior deviation is not cured after the correction of the undue convergence. 5. In muscular insufficiency, except in myopes.

The Cerebral Optic Centers.—Henschen (*Rev. gén. d'ophthal.*, Aug. 31, 1894) draws the following conclusions from his observations: 1. Hemianopsia can only exist when there is a lesion of the fasciculus of the occipital optic tract or of the calcarine cortex. 2. A cortical lesion of the parietal lobe can give rise to hemianopsia only when it touches the visual fasciculus in the lower portion of the optic radiation. 3. The optical center is confined to the cortex of the calcarine fissure. 4. Both fasciculi, the crossed and the direct, are present in the cortex of the calcarine fissure. 5. The cortical macula lutea is to be found in the anterior part of the calcarine fissure. 6. The central portion of the optical center is not found in the cuneus. 7. In the so-called cerebral retina the macula lutea is situated the most anteriorly, and the peripheral field farther backward in the horizontal meridian; the upper lip corresponds to the dorsal portion of the retina of the ocular lobe. The two fasciculi, crossed and direct, are represented in this surface, and their elements are probably located side by side. The cerebral retina is at the same time a retina for the perception of colors. 8. The two halves of the macula lutea are often represented in the two hemispheres.

The Inclinometer in Ophthalmology.—Prince (*Ophthal. Rev.*, July, 1894) has devised an instrument which consists of a thin, circular metal plate, one millimetre in thickness and thirty-seven millimetres in width, with a central aperture. The periphery is so graduated that the superior or zenith point will indicate every possible inclination of the diameter, the situation of which is shown by a strong white line. The two sides are graduated respectively to indicate the inclination of the diameter from the horizontal and vertical lines, the former for determining the axis in astigmatism, and the latter for such purposes as require the zero point to be in the vertical plane. In the practice of retinoscopy the inclinometer is rotated in the trial cell until the diameter is seen to correspond with the inclination of the shadow, the degree of which is to be found at the zenith point of the instrument. Accuracy is facilitated by employing a small source of illumination, best furnished by a one-centimetre aperture in a screen surrounding a Wellsbach gas burner. The light is placed close to and to the left of the observer, and reflected by means of a small plane mirror into the eye of the patient, who sits at the distance of a metre. The instrument is found to be convenient for determining the inclination of the axis of a trial cylinder. It facilitates the determination of the inclination of the principal meridians rendered apparent by the elongated image of a small circular object. The patient places the diameter parallel with the long diameter of the distorted image, when the pendulum or zenith will indicate the inclination of one principal meridian. The apparent inclination of a vertical object, due to paralysis of an oblique muscle, is denoted by the corresponding inclination of the diameter as seen by the unaffected eye.

A New Operation for Trichiasis and Distichiasis.—Watson (*Ophthal. Rev.*, July, 1894) has devised an operation which consists in forming a bridge by incisions parallel to one another and to the margin of the lid, including in its substance the whole of the faulty eyelashes, a "buttonhole" lying horizontally above the margin of the lid thus formed. Into this "buttonhole" a "button," marked out in the skin immediately above it by a semilunar incision, is turned and fixed *in situ* by sutures. The result is to place a band of skin at the margin of the eyelid, and by this means the transplanted eyelashes are quite removed from the cornea.

New Operation for Distichiasis.—Germaix (*Rec. d'ophthal.*, July, 1894) recommends the following method of operating: 1. Dissect the lid vertically into two laminæ, the anterior one containing the hair bulbs, until the lower bulbs become visible. 2. Cauterize the lower hair bulbs with the galvano-cautery. 3. Continue the vertical dissection until the tarsus is laid bare for a distance of six or seven millimetres. 4. Excise a musculo-cutaneous palpebral flap, crescentic in shape, so as to uncover the suspensory ligament of the lid. 5. Introduce as many sutures as may be necessary through the suspensory ligament, and embracing in folds or loops the ciliary margin of the lid. The sutures are then to be tied, and the superior edge of the ciliary margin brought in coaptation with the upper part of the lid.

Ocular Gymnastics.—Hobby (*Amer. Jour. of Ophthal.*, June, 1894) recommends muscular exercise and training in the treatment of strabismus and heterophoria. The system employed is to produce successive contractions of the muscle to be exercised, for a time short of extreme fatigue, from thirty to a hundred contractions at first, increasing the number in accordance with the ability of the patient to bear the work. Exercise of the ciliary muscle can be secured in a similar manner, by requiring the patient to look at a distant object, then at one close by, using small objects and being careful to secure accommodation each time before changing. Exercise in co-ordination can be obtained by using both eyes first on a distant object, then on a near one, using the same care to secure perfect accommodation before change, and repeating the changes as frequently as perfect accommodation will allow. Co-ordination can be practiced at different distances and angles, and it is well for the patient to wear full correction of any refractive error while practicing accommodation or co-ordination.

Researches into the Secretory Nerves of the Lacrymal Gland.—Tepliachine (*Arch. d'ophthal.*, July, 1894) draws the following conclusions from his anatomical investigations: 1. The idea that the facial nerve is the secretory nerve of the lacrymal gland is not confirmed. 2. The secretory filaments in the lacrymal and subcutaneous malar nerves, in their intracranial course, run in the trunk of the trifacial, and they probably participate in the augmented secretion of the tears which is provoked in a reflex way and under the influence of psychical emotions. 3. The normal and continuous secretion of the tears can not be considered as the sole result of a reflex coming from the excitation of the anterior part of the eyeball, and does not depend on the secretory filaments of the lacrymal and subcutaneous malar nerves. 4. The cervical sympathetic may be regarded as the secretory nerve of the lacrymal gland, under the influence of which the normal and continuous secretion of tears goes on. 5. The facts relating to the paralytic secretion of tears and their qualitative difference obtained by irritation of the lacrymal branch of the cervical sympathetic may well be questioned.

Amyloid Degeneration of the Conjunctiva.—Kruch and Fumagalli (*Ann. d'oc.*, July, 1894) draw the following conclusions from their investigations: 1. Amyloid degeneration of the conjunctiva may be entirely independent of the various processes of inflammation which may have preceded it in the conjunctiva. 2. The degeneration exists as a simple local process, without any connection with the general condition of the patient. 3. Even the merely partial excision of the degenerated tissue improves the local conditions and may lead to a cure. 4. The elements of the subconjunctival connective tissue contribute in great part to the production of the amyloid substance. 5. The vessels do not represent the point of origin of the degeneration. 6. In the degenerated tissue are found two microbes with the characteristic signs of chronic inflammation.

Considerations on the Cortical Visual Center, based on Two Cases of Cortical Hemianopsia with Autopsies.—Vialet (*Arch. d'ophthal.*, July, 1894) reports the results of the clinical and post-mortem study of two cases of hemianopsia. They seem to prove that a circumscribed lesion of the internal surface of the occipital lobe may cause persistent hemianopsia and justify us in placing the center of visual perception in the three convolutions of this internal surface. The cortical zone into which the visual fibers enter is not as circumscribed as represented by Henschen, who confines it to the calcarine fissure. It really comprehends the entire internal surface of the occipital lobe, including the three convolutions of the cuneus and of the lingual and fusiform lobes.

(*To be concluded.*)

Miscellany.

The Diagnosis of Acute Perimeningitis.—In the *Journal des praticiens* for March 16th there is an article on this subject in which the writer remarks that this disease is rare, and that few cases have been known previous to the one observed by M. Theslier.

Acute perimeningitis is an inflammation of the cellular fatty tissue around the cerebral dura. Its evolution is sometimes acute, spontaneous, with no appreciable pathogenic cause, and sometimes secondary, with cellulo-muscular inflammation near the spinal column. The symptoms resemble those of inflammation of the medullary meninges. It begins with sharp pains, with alternate remissions and exacerbations, in the legs and along the spine, and they are accompanied by stiffness of the limbs or of the neck. At the same time there is febrile movement with constipation. Subsequently there are pains in the abdomen and in the lumbar region, also in the legs. During the suppurating period, when the spinal canal is invaded with pus, the disease becomes infectious; sometimes paralysis sets in, and death takes place in a short time. In this evolution the meningitic symptoms may fail to show themselves, and the diagnosis is consequently rendered more difficult.

The idea of cerebral meningitis, however, may be dismissed in the absence of the meningitic tripod, of ocular complications, and of the typical course of the temperature. Cerebro-spinal meningitis is epidemic and associated with infectious localizations in the lungs and in the heart, and its characteristics are distinct from those of acute perimeningitis. In the diagnosis of spinal meningitis great difficulties often arise, although in the beginning the early development of paralysis is a symptom of the disease. If it appears later on, there is reason to believe that it is a question of acute perimeningitis.

Perimeningitis, says the writer, may be confounded with typhoid fever, osteomyelitis, and rheumatism. For this reason, in the analysis of the symptoms, we should bear in mind that perimeningitis shows three different types in the beginning: A subacute type, with violent invasion, chills, headache, and renal pains; an acute type, the first symptoms of which resemble those of lumbago, and which is accompanied by insomnia, pains, cramps, and febrile movement; and the third type, which is slow, developing silently for several months before the symptoms appear.

The treatment of acute perimeningitis in the beginning is the simple expectant method, and, when it is possible, operative opening of the spinal canal.

The Pulse in Clinical Surgery.—The *Revue internationale de médecine et de chirurgie pratiques* for March 10th contains a review of a work by M. François Bertonnier on this subject. In this interesting work, says the writer, the author first recalls Marey's statement as follows: "The pulse is the sensation of sudden swelling felt by the finger which palpates an artery. The blood-vessel that allows itself to be depressed becomes suddenly hard each time that a systole of the heart increases the arterial tension." Bertonnier then considers this physiological phenomenon with regard to its frequency, its power, and its rhythm. In two chapters he explains the connection between the pulse and the temperature, also the usefulness of examining the pulse in cases of severe hæmorrhage. His principal conclusions are the following: 1. The discordance of the two curves, that of the temperature and that of the pulse, is often an indication of a serious condition. 2. In grave hæmorrhage the great depression of the pulse that accompanies it has sufficed occasionally to indicate the true diagnosis. 3. In traumatic shock or that following an operation the degree of slenderness, of frequency, and of irregularity of the pulse will be the most exact measure of the violence of the shock and of the patient's vital resistance. 4. In traumatic cranio-cerebral lesions extreme slowness of the pulse is a never-varying sign of concussion, of contusion, or of cerebral compression. Eventually, its acceleration with elevation of temperature is a sign of meningo-encephalitis. 5. The pulse should often be a guide in surgical interference in traumatic or inflammatory affections of the abdomen. 6. The absence of arterial pulsation at the extremity of a member is a very important sign and calls for a prompt determination. Finally, the pulse, under the influence of chloroform, by its irregularity, intermittence, and arrhythmia, indicates, even better than auscultation of the heart, that the valvular lesions are badly compensated for, and that there is danger in the administration of chloroform.

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 4th inst., one of the special orders was to be the presentation of a portrait of the late Dr. Valentine Mott. The following papers were to be read: Experiences in the Production and Use of Diphtheria Antitoxine, by Dr. Hermann M. Biggs; The Technique of the Production of Diphtheria Antitoxine, by Dr. William H. Park; Experiences in the Use of Diphtheria Antitoxine for Immunization, by Dr. C. H. Peck; The Results of Autopsies on Persons Dying after Treatment with Diphtheria Antitoxine, by Dr. George P. Biggs; The Anatomical Lesions found in Animals which have Died during the Process of Immunization, by Dr. Ira Van Gieson.

At the next meeting of the Section in General Surgery, on Monday evening, the 8th inst., a paper entitled Undescended Testis will be read by Dr. John B. Walker. Patients will be presented and pathological specimens, new instruments, and apparatus exhibited.

At the next meeting of the Section in Genito-urinary Surgery, on Tuesday evening, the 9th inst., Dr. George Woolsey will read a paper on Some Considerations on Prostatectomy, and Dr. J. R. Hayden one entitled Double Castration for Hypertrophy of the Prostate, with the Report of a Case. Patients will be presented and new instruments and pathological specimens exhibited.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 11th inst., the following papers will be read: What shall the General Practitioner do for Acute Otitis? by Dr. Edward B. Dench; Otitis in Young Children, by Dr. James E. H. Nichols; and The Cause and Prevention of Deafness, by Dr. Gorham Bacon.

The Treatment of Vomiting.—The *Province médicale* for March 9th publishes an article in which the writer considers the question of the difficulty of controlling various kinds of vomiting. He recommends the following formulas, the first of which, according to Steffen, is useful in the vomiting of pregnancy: Distilled water, five ounces; tincture of iodine, twelve drops. A tablespoonful of this in half a glass of sweetened water is to be taken every two hours. The same author recommends the addition of a few milligrammes of morphine hydrochloride to each spoonful, or an ounce of the distilled water may be replaced by an ounce of cherry-laurel water. The *Centralblatt für die gesammte Therapie*, in one of its last numbers, recommends the two following formulas: 1. Chloroform, nine hundred grains; tincture of iodine, a hundred and twelve grains. Five drops of this are to be taken every night in a glass of Seltzer water. 2. Distilled water, three ounces and a quarter; cocaine hydrochloride, half a grain; antipyrine, fifteen grains. A teaspoonful may be taken every half hour.

The following procedure, says the writer, in which three solutions are used, has often been employed successfully: 1. Alcohol, a hundred and fifty grains; menthol, eight grains; tincture of nux vomica, thirty grains. 2. Tincture of iodine, a hundred and fifty grains. 3. Saturated chloroform water, three ounces. Every half hour, or every fifteen minutes if necessary, the patient should take a dessertspoonful of the chloroform water, which may be diluted with iced Seltzer water, after having added ten drops of the first solution to it. If this is not sufficient two drops of the tincture of iodine may be added to each spoonful. Finally, if it is necessary, from two to three drops of a 1-in-50 solution of morphine or cocaine may be added to these formulas. These two solutions are usually employed for subcutaneous injections. It is well to substitute occasionally for one of these medicaments from two to four drops of the ordinary solution of antipyrine for cutaneous injections, according to the following formula: Antipyrine, seventy-five grains; cocaine hydrochloride, two grains and a half; distilled water, a sufficient quantity to make ten cubic centimetres. If these different medications fail, says the writer, the physician may resort to the following therapeutic measure, which is very simple and has been successfully employed by M. Robin in serious cases: Apply a small blister to the pit of the stomach, also administer a small suppository containing a grain and a half of powdered crude opium and a sufficient quantity of cacao butter once or twice during the twenty-four hours. The vomiting is very often arrested, even if it is the serious vomiting of typhoid fever. Sometimes, also, inhalations of oxygen are useful.

The Influence of Fatigue on the Auditory Functions.—The *Presse médicale* for March 16th contains an abstract of an article which was published in the *Archivio italiano di otologia* for 1894. In order to study this question, says the writer, the author made examinations of twenty-four bicycle-riders after they had ridden thirty-two miles in two hours and a quarter. Two of the men complained of subjective noises only, while in nearly all of them the perception of sounds by aerial conduction was less marked than in the normal condition, and Rinne's experiment showed negative results. In the riders who were subjected to an examination with tuning-forks a slight diminution in the perception of loud sounds was ascertained. The only lesion noticed was a slight hyperæmia of the drum membrane.

The competitors were again examined after a rest of from two to seven hours, and in six of them the auditory power was found to be the same; in two it was not so good, and in the sixteen others it was better, the aerial perception having increased from a few centimetres to a metre and a half, and Rinne's experiments gave positive results. The men in whom the amelioration was the most marked, in whom, consequently, the hearing had undergone the greatest change, were those who had had little experience or training.

Physical fatigue, says the writer, evidently causes a temporary weakening of the auditory power. This fact demonstrates, besides, he says, that the effects produced by great physical exercise are not shown by muscular fatigue only, but they remotely affect the entire organism and especially the nervous system, and the special senses, on account of the delicacy of their functions, are more likely to reveal the effects. The enervation shown by birds of passage after a long flight is a phenomenon of the same nature as that observed by the author in the examinations referred to.

A Syphilitic Lesion observed in a pre-Columbian Skull.—Dr. Albert S. Ashmead writes to us as follows: In the Bandelier collection, Metropolitan Museum, New York, there is a skull of a mummy, just being classified, from Pacha Camac, on the Peruvian coast, near Lima. It was found twelve feet underground, and no other part of the skeleton was in a condition to be shipped. It is without doubt, according to Mr. Saville, the director, and Professor Putnam, who examined the specimen with me, pre-Columbian. In this burial place nothing modern, nothing post-Columbian has ever been found.

In the right supratemporal region of the skull, on the parieto-frontal suture, there is a mark of disease, almost eating through the bone; there is no doubt that the scalp had been removed, and what followed we may guess—it was found that the skull itself was affected, and the case was left alone. Evidently the man lived long enough to almost allow time to obliterate the mark of the surgeon's instrument. On the inside of the skull no mark of disease, except the extreme thinness of the tissue, strikes the observer. To my mind, this is an instance of syphilis in a pre-Columbian skull. The location of this lesion and the appearance of the diseased bone throughout are peculiarly syphilitic. I have seen such instances many times in Japan, on the living body, and once in a post-mortem examination in a *yoshiwara* (licensed prostitute).

Sudden Death in Consequence of a Urethral Injection of Cocaine.—In the *Centralblatt für Chirurgie* for March 10th we find an abstract of an account published in *La France médicale* by M. Reclus, of a case in which sudden death followed an injection of about six drachms of a five-per-cent. solution of cocaine into the urethra. The urethral mucous membrane appeared to be quite intact, and the death was attributed to pronounced arterio-sclerosis and to the undue quantity of the drug employed.

Original Communications.

EXTREME LOCAL DILATATION IN THE TREATMENT OF URETHRAL STRICTURE AND ITS ALLIED CONDITIONS.

By JAMES P. TUTTLE, M. D.,
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The many letters and personal inquiries I have received concerning the method of local dilatation in the treatment of urethral stricture and its allied conditions justify me in making to this section a supplementary report upon the subject. In 1891 I read before the American Association of Genito-urinary Surgeons a paper detailing my experiences with the method up to that time. In that paper I laid down the principles upon which the treatment is based, and stated that I had found, as a result of examinations of a considerable number of urethras in cadavers, the following:

1. A lessening in caliber of the membranous urethra, compared with that of the prostatic, averaging 3 + millimetres.

2. A constriction at the anterior border of the bulbous portion, about at the point of attachment of the suspensory ligament, averaging nearly four millimetres. At this point the urethrometer nearly always gives a decided jump; it can usually be distended a size or two after passing here, and be drawn uninterruptedly to the next constriction.

3. A constriction of from one to three millimetres at the posterior border of the fossa navicularis, which, though not always present, was found in the large majority of cases.

4. The urethra could be distended at all points except the meatus to 50° F. without rupture.

5. A dilatation at the fossa navicularis in every case.

6. The size of the meatus bears no regular proportion to that of the urethra.

These observations were made upon healthy urethræ, so far as I could discern, by dissection, and therefore we may conclude that these constrictions and dilatations are normal. Their existence, however, does not preclude the fact that we may have pathological contractions in these same localities, or that these same constrictions, unnoticed and unknown, so long as healthy, may become the starting point or protracting factor in intractable affections when once invaded by disease.

These views are in harmony with those of Sappey, who describes the urethra as a canal with four contractions and three dilatations. "Beginning at the neck of the bladder in a contraction, it is dilated in the prostatic portion; contracting in the membranous portion, it suddenly dilates into the bulbous pouch, which is about an inch and a half long; from this point forward it contracts for the space of an inch and a half to two inches and a half and to the extent of one to three millimetres in circumference; it maintains about this caliber from here outward to within three quarters of an inch of the end, where it dilates again to form the fossa navicularis, and ends at the meatus in a sudden more or less extensive contraction. These variations are no accidents of evolution or freaks of Nature, neither are the dilatations in one part due to contractions of another. They are natural anatomical conformations, found alike in old and young, clearly designed for a wise purpose and demanding from us careful consideration and conservatism. No less are they necessary to perfect physiological functions than the nozzle to the fire hose or the curves in the pipes of our modern sanitary plumbing. That the nozzle may be too small for the hose and pump, or that some portion of the urethra may be disproportionate to the functional action required of it, is conceded; but that every dilatation in the urethra is a pathological pouch, or every coarctation a stricture, or that, in order to restore one part to its normal condition, we must destroy the anatomical conformation of the whole of the urethra, I do not believe."

The existence of these dilatations and coarctations should be constantly borne in mind, and the normal conformation of the parts, so far as is consistent with the good of our patients, should here, as elsewhere in the body, be conserved.

Dr. Otis, to whom we owe more than to any other one man for our knowledge of stricture and its results, avowedly disclaims the uniformity of the urethral caliber; nevertheless, his methods, and those of the profession who practice gradual dilatation with sounds, lead to the production of a uniform channel. Cutting alone never cured a stricture. It is the subsequent persistent, thorough dilatation that completes the work. This, if done with sounds, necessitates making the meatus as wide as the widest portion of the urethra. Loss of sexual power, urethral pockets, dribbling of urine, and curvature of the penis, as results of internal urethrotomy, increase in direct proportion to the thoroughness with which the operation is done. Experience convinces me that these results are much more frequent than the books would lead us to believe.

The cure of stricture by gradual dilatation is based upon the assumption that a retrograde metamorphosis is set up in the connective tissue, which causes its atrophy or absorption, and the coarctation is thus removed. If this is true, and if, after all, it is the dilatation that cures in internal urethrotomy, it seems to me that local dilatation at the strictured part ought to accomplish the same result without mutilation of the rest of the urethra. With this in view, I devised the urethral dilator described in the paper referred to above (*New York Medical Journal*, October 3, 1891, p. 371). The special points of interest in the instrument are its parallel separation over a limited space, its powerful mechanism, its applicability to all portions of the urethra, and its protecting rubber cap, which protects the mucous membrane from the edges of the metallic bars and prevents pinching when the bars are closed. After three years' further use of it I find no reason to alter the favorable opinion then expressed, and feel justified in recommending it to the profession in this supplementary report of cases treated by this method.

It would be puerile to claim that dilatation was the only means of cure in the cases here presented. It has always been supplemented by the rational and accepted methods of treatment in these affections—such as hot-water, boric-acid, and permanganate-of-potassium irrigations, deep instillations of nitrate of silver, sulphate of zinc, etc., and the local application of remedial agents through the endoscope and urethral speculum where necessary. The dilator simply takes the place of sounds and the urethrotome, accomplishing, I believe, better results with less pain in less time, and without any danger of immediate or remote unfortunate consequences. It is but just to say, however, that nearly all of these cases, as the tables will show, had been treated unsuccessfully by these same agents previous to the treatment by the dilator.

The following tables, taken entirely from private practice, embrace a variety of cases more or less similar, but all belonging to the class in which sounds and internal urethrotomy are generally used. The figures given all refer to the French system, and the measurements were made with the Otis improved urethrometer:

No.	Name.	Diagnosis.	Location and size of stricture.	Normal urethra and meatus.	Previous treatment.	Size obtained.	Time of treatment.	Result.
1	A. H.	Traumatic stricture, with reflex symptoms, due to fall on perinæum.	Half an inch back of cut off muscle, 26.	U., 36; M., 30.	Sounds, internal treatment.	39	8 weeks.	Cured. Irrigations of potassium permanganate (1 to 3,000) as hot as he could stand were used daily for two weeks, and then less frequently.
2	W. C. T.	Stricture of membranous urethra, with frequent painful priapism.	From one inch in front of neck of bladder to cut off muscle, 29.	U., 37; M., 33. Had been cut.	Internal urethrotomy, sounds, deep urethral injections, etc.	38	3 weeks.	Improved. Saw patient six months after treatment; he said he considered himself well.
3	P. L.	Chronic gonorrhœa, with two strictures and hæmorrhoids.	Two inches and three quarters from meatus, 28; membranous, 26.	U., 36; M., 32. Cut.	Internal urethrotomy, sounds, etc.	40	12 weeks.	Cured. Case reported in *N. Y. Polyclinic Journal*, November 15, 1894.
4	F. B. K.	Chronic gonorrhœa, with stricture and granular deep urethritis.	Seven inches and a half from meatus in membranous urethra, 28.	U., 35; M., 30.	Injections, sounds, etc.	39	4 weeks.	Cured.
5	O. K.	Seminal vesiculitis, deep urethritis, slight stricture.	Membranous urethra, 30.	U., 38; M., 32. Cut.	Sounds, deep injections, etc.	41	14 weeks.	Cured. Fuller's method of milking the vesicles used.
6	C. S.	Deep urethritis, chronic discharge, pricking sensations near neck of bladder, stricture.	Three inches from meatus, 28; membranous, 26.	U., 35; M., 32. Cut.	Internal urethrotomy, sounds, injections, etc.	41	10 weeks.	Cured.
7	J. L.	Chronic urethritis, close stricture of pendulous urethra.	Quarter of an inch posterior to meatus, extending back three and a half inches.	U., 33; M., 30.	Injections and internal medication.	36	5 months.	Cured.
8	R. W.	Chronic deep urethritis, stricture.	Half an inch posterior cut off muscle, 30.	U., 36; M., 32. Cut.	Internal urethrotomy, sounds, injections, etc.	40	4 weeks.	Improved; still under treatment.
9	R. H. W.	Deep urethritis, two strictures.	From one inch and a half posterior to meatus to five inches, 28; also in membranous urethra, 26.	U., 36; M., 30.	Sounds, injections, etc.	42	10 weeks.	Cured.
10	W. J. C.	Traumatic stricture, reflex pains and dysuria.	Six inches and a half back in membranous urethra, 20; also three inches back, 30.	U., 35; M., 26.	Sounds; false passage had been made, leaving distinct pocket at juncture of membranous and pendulous urethra.	38	10 weeks.	Cured.
11	R. P. D.	Chronic urethritis, stricture.	Three inches back of meatus, 27.	U., 35; M., 25.	Sounds, injections, etc.	36	2 weeks.	Treatment continued by another physician, who reported him well in ten weeks.
12	B. A.	Umbrella stricture, penile and perineal pains, premature emissions.	Two inches and a half, 32; seven inches and a half, 22.	U., 41; M., 30.	None.	44	16 days.	Cured. Pains and urinary symptoms relieved. Patient wrote me some three months later he was well; have not seen him since.
13	W. E. B.	Stricture, chronic urethritis, premature emissions.	Three inches and a half, 32; membranous urethra, 26.	U., 37; M., 26.	Sounds, injections, etc.	40	7 months.	Cured. Stricture cured in three months, but other symptoms were more obstinate.
14	L. U.	Stricture, with chronic discharge and premature emissions.	Two inches, 26.	U., 35; M., 26.	Injections and internal medication.	36	4 weeks.	Cured.
15	C. M.	Stricture, with reflex symptoms; no discharge.	Three inches and a half, 32; membranous urethra, 30.	U., 38; M., 32. Cut.	Internal urethrotomy, sounds, injections, etc.	42	3 months.	Cured.

No.	Name.	Diagnosis.	Location and size of stricture.	Normal urethra and meatus.	Previous treatment.	Size obtained.	Time of treatment.	Result.
16	J. S.	Chronic gonorrhœa, close stricture.	Two inches, 18; membranous urethra, 24.	U., 36; M., 26.	Injections and internal medication.	38	8 weeks.	Cured.
17	E. A.	Chronic gonorrhœa, with stricture.	Three quarters of an inch, 26; three inches and a half, 31.	U., 35; M., 27.	Injections, sounds, etc.	38	6 weeks.	Cured.
18	W. M.	Strictures, with granulated urethra, seminal weakness.	Six inches back, 27; two inches and seven eighths, 30.	U., 37; M., 32. Cut.	Internal urethrotomy, sounds, deep injections, etc.	40	3 months.	Cured.
19	J. S.	Chronic gonorrhœa, stricture.	One inch and a half back, 26.	U., 38; M., 28.	Sounds, injections, etc.	42	8 weeks.	Cured.
20	M. D.	Chronic gonorrhœa, two strictures.	One inch and a half back, 29; seven inches and a half, 28.	U., 38; M., 30.	Sounds, etc.	41	10 weeks.	Cured.
21	M. P.	Gleet and stricture.	One inch back, 25.	U., 34; M., 28.	Injections and internal medication.	36	4 weeks.	Cured.
22	E. R.	Syphilis, chronic gonorrhœa, two strictures, one not distensible.	Three inches and a half back, 21; membranous urethra, 24.	U., 36; M., 29.	Sounds, injections, etc.	40	8 weeks.	Cured. Internal urethrotomy was performed on the anterior stricture.
23	J. N.	Two strictures, with reflex pains and itching of urethra; no discharge; one stricture not distensible.	One inch back, 26; three inches, 25.	U., 34; M., 29.	Sounds, internal medication.	38	10 weeks.	Cured. Internal urethrotomy on posterior stricture, followed by curvature of penis.
24	E. F. B.	Dysuria, chronic gonorrhœa, two strictures.	One inch back, 20; three inches and a half, 28.	U., 35; M., 18.	Injections and internal medication.	38	8 weeks.	Cured. Meatotomy was done in this case. Cut to 28.
25	I. S.	Close stricture, dysuria, and chronic urethritis.	Three inches and a half back, filiform size.	U., 34; M., 24.	Injections and internal medication.	36	8 weeks.	Cured.
26	I. B.	Chronic gonorrhœa, stricture.	Two inches back, 27.	U., 36; M., 30. Cut.	Internal urethrotomy, injections, etc.	38	6 weeks.	Apparently well, but still under treatment.

It will be observed that in two cases internal urethrotomy was performed. These were cases of hard, unyielding, cicatricial strictures. They were both in the pendulous urethra, and only the strictured area was incised, the subsequent dilatation being carried out entirely with the dilator. In one, curvature of the penis resulted; in the other the result was perfect. In six of the twenty-five cases internal urethrotomy had been previously done without success.

I believe these failures to be due, not to the operation, but to lack of persistent, thorough, subsequent dilatation. The pushing in and dragging out of sound after sound through a cut and sensitive meatus is so painful that only the most unsympathetic can resist the patient's entreaties to wait till another time, whereas with the dilator once in position the distention can be increased so gradually that the added pain is scarcely perceptible.

While the instrument may appear to some as a divulsor, I disclaim for it any such intention, and I would warn all who may adopt it against the dangers of such a use of the dilator.

Very gradual dilatation has given me my best results. I seldom increase the distention more than two or three millimetres at a *séance*, and these I make from three to ten days apart. In irritable patients, when the sittings must be far apart, the course of treatment is considerably prolonged. The use of the instrument is so simple I need not describe it. The caps should be taken off immediately after using and kept in a solution of bichloride of mercury (1 to 1,000). I keep one for each individual patient under treatment, to avoid the dangers of fresh inoculation.

The anterior urethra should be irrigated with a mild antiseptic solution before introducing the instrument, and where the urethra is sensitive, cocaine may be used with decided advantage. Care should be taken not to introduce the dilating portion through the neck of the bladder, for overdistention here is liable to cause incontinence of urine and traumatic cystitis.

The present series, together with those before reported, embraces sixty-five cases of which I have kept accurate notes. I have received letters from a number of physicians reporting with much enthusiasm the successful use of the instrument in a large number of cases, but have preferred to confine the tables to my own experience. The immediate results speak for themselves; but what is more conclusive to my own mind, so far as the ultimate value of the treatment is concerned, is the examination I have made of patients at a remote period from treatment. Of the thirty-five whose cases were reported in 1891, I have examined eighteen within the past six months. In only two was there any sign of a return of the stricture, and these, as my notes showed, had been under treatment only three and two weeks respectively. As the average time required for treatment is over six weeks, those two cases would hardly cast any discredit upon the method.

35 West Forty-fifth Street.

ENTANGLEMENTS AND SHORTENING OF THE UMBILICAL CORD.*

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CONSULTING PHYSICIAN TO THE ITALIAN HOSPITAL, ETC.

Probably in twenty-five per cent. of all labors the cord is either wound round the neck or is in some other anomalous condition. At the New York Mother's Home Maternity Hospital, in one thousand cases of labor abnormal conditions of the cord occurred at about every fourth or fifth delivery.

Suicidium fœtus in utero is often referred to by the older writers as being of interest and of common occurrence; that it is not rare there can be little doubt.

Within a comparatively short time I have seen a number of specimens illustrating this complication of pregnancy. It is a pathological condition due to the movements of the fœtus, by which the cord is twisted around the neck, body, or extremities so tightly as to shut off the blood supply, and thus cause its death. In the first specimen—

Case I, Figs. 1 and 2—which is at two months, the cord passes from the umbilicus around the neck once, then into the left axilla, then around the back of the neck, and around the other arm twice, under the axilla the second time, inclosing the forearm flexed upon the arm, then passing backward and downward to the placenta. It is twisted so tightly around the neck as to cause strangulation of the cord and consequent death of the fœtus. It is much shriveled from having been kept some time in alcohol. For this specimen I am indebted to my friend Dr. M. C. O'Brien. In the next—

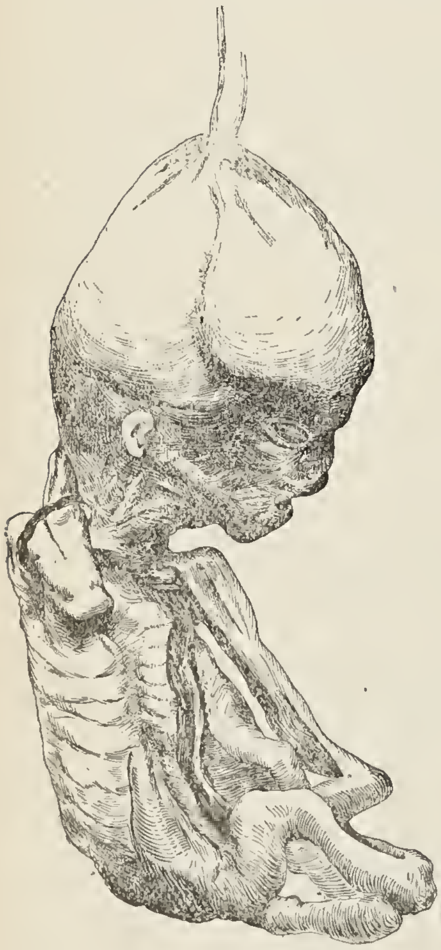

Fig. 1.—Front view.

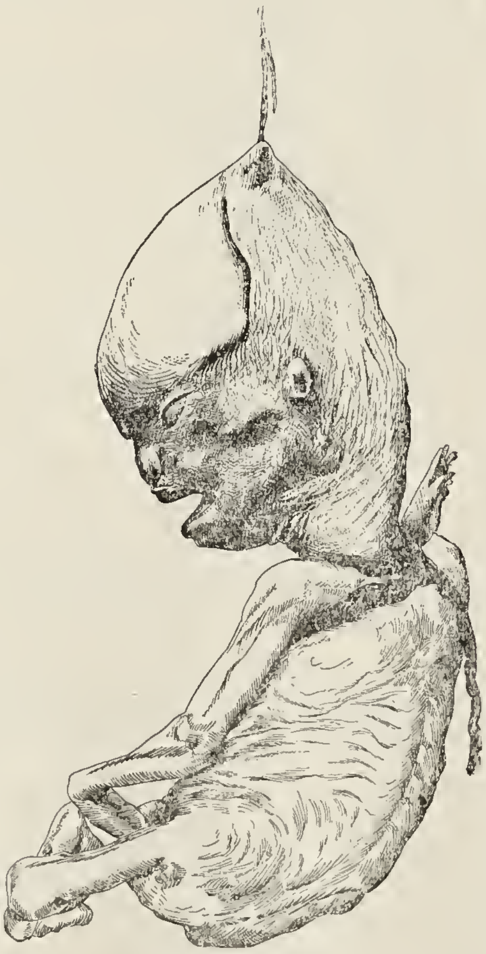

Fig. 2.—Rear view.

Case II, Fig. 3—the specimen is about two months and a half old. The cord in this case is simply twisted around the neck three times, interfering with its growth and shutting off the blood supply. In both of these cases there is an extreme smallness of the neck, it being no larger than the forearm of the fœtus. The next—

Case III, Fig. 4—is one with the fœtus at or near full term.

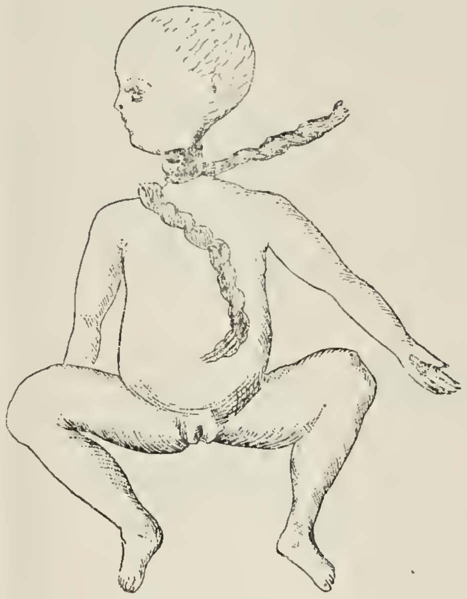

Fig. 3.—Case II.

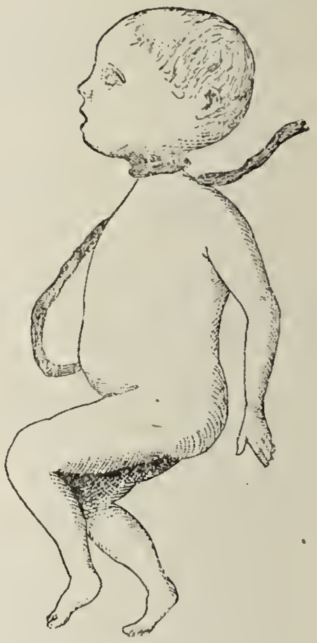

Fig. 4.—Case III.

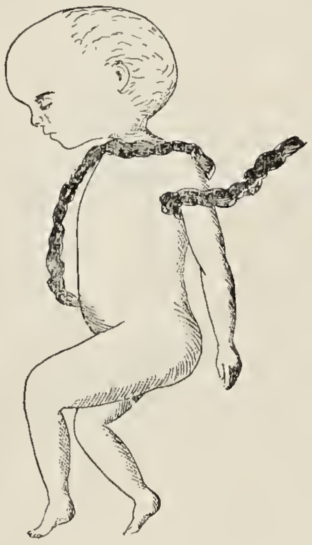

Fig. 5.—Case IV.

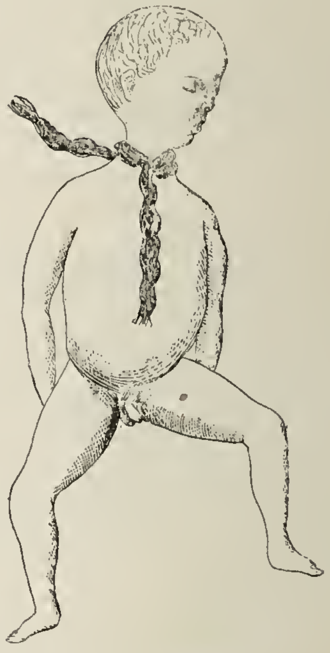

Fig. 6.—Case V.

Suicidium fœtus in utero, author's four cases.

The mother was suffering from a deviation of the spinal column of such a character that the left hip occupied a higher plane than the right, probably resulting in the displacement of the uterus while it was expanding, and, consequently, irregularities in the movements of the fœtus. As the labor progressed, presumably at full term, the child's heart-beats could not be made out. When the membranes ruptured, the characteristic bilious-looking discharge showed at once that there had been death of the fœtus. Upon delivery, I found the child was of a deep purplish color and dead, with the cord twisted once, but with considerable tightness, around the neck. The cord was extremely small and thin. The only cause of death that could possibly be assigned in this case was strangulation by tightness of the cord about the child's neck, thus interfering with its circulation, shutting off the blood supply.

Case IV, Fig. 5.—When I saw this patient she had been twenty-four hours in labor. The membranes had been ruptured for some time. On examination, I found the child dead and the cervix thoroughly dilated. The head, which was hydrocephalic, was above the superior strait. I applied my axis-traction compression forceps and delivered easily a decomposed fœtus of apparently nine months' gestation. The cord very tightly encircled the neck and passed around the shoulder and under the axilla. This was undoubtedly the cause of death.

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* Read before the Section in Obstetrics and Gynæcology of the New York Academy of Medicine, November 21, 1894.

Case V, Fig. 6.—In this case the cord was very short and it was wound twice around the neck. The shortening caused considerable hæmorrhage three hours before delivery by traction on the placenta. The result of this was death of the fœtus, which was of a livid color, but otherwise natural and healthy in appearance. The membranes ruptured only five minutes before the child was delivered.

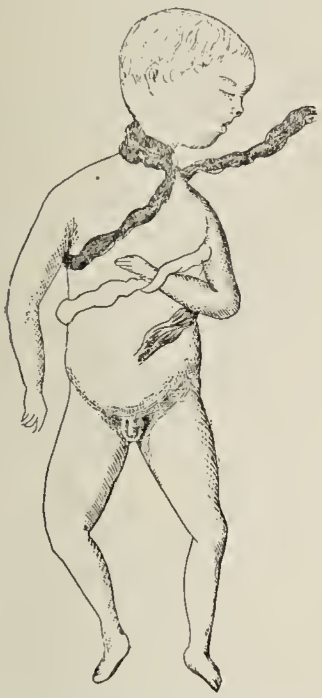

Fig. 7.—Case VI. Author's case causing inversion of the uterus.

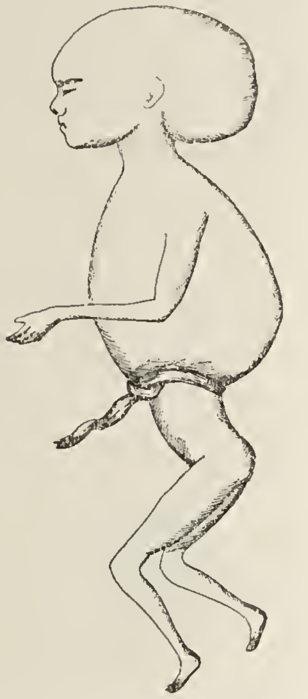

Fig. 8.—From *American Medical Recorder*, 1823, vol. vi, p. 292.

Case VI, Fig. 7.—This was a case of acute puerperal inversion of the uterus, resulting probably from winding and shortening of the cord. Patient, a primipara, aged twenty-eight years, had albumin in the urine (ten per cent. by bulk). Labor lasted but six hours. Just at the final moment of delivery there was a severe pain, and the placenta, which was said to be firmly attached, was found along with the uterus inverted into the vagina. Hæmorrhage was very profuse and the patient became exsanguinated. I believe no special attempts were made to replace the uterus, as the true condition of affairs was not recognized by those present. I saw her about fourteen hours after the accident occurred. The cord in this case was wound around the child's neck, wrist, and body. This case I reported *in extenso* in the *New York Journal of Gynæcology and Obstetrics* for December, 1893.

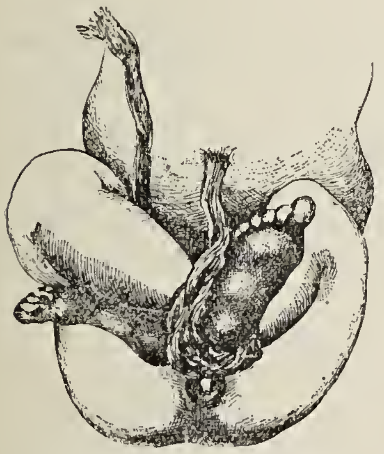

Fig. 9.—From *Archives de tocologie, des maladies de femmes et des enfants nouveau-nés.* Paris, 1880, p. 108.

In a case reported by Mauriceau the fœtus was three months old; cord tightly stretched. Two folds of the cord encircled the child's neck, causing deep marks to be left there. There was separation near its origin at the navel.

My friends Dr. M. C. O'Brien and Dr. S. Marx report each a case of rupture of the cord due to shortening. Dr. O'Brien's patient was a young woman twenty-eight years of age. Examination *per vaginam* showed the fœtus to be lying in an abdomino-anterior position, so that the hand, cord, and foot all presented at once. The uterine contractions were very strong; during the examination there was a sudden snap and a gush of blood, showing that the umbilical cord had ruptured. On delivery, which was performed by pelvic version, the right hand being gently pressed into the groin of the child, the stump of the cord was transfixed with a needle and tied. In this case a few moments' hesitation would have sacrificed the child's life.

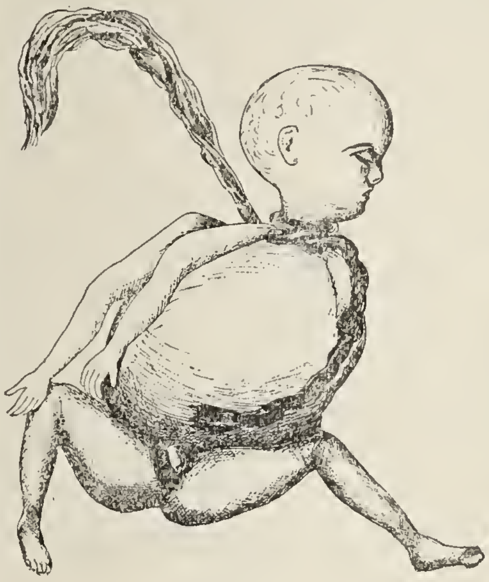

Fig. 10.

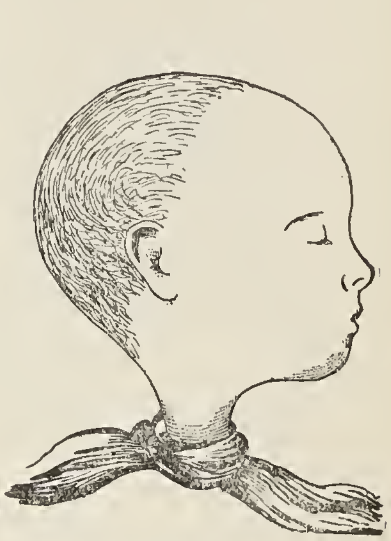

Fig. 11.

In Dr. Marx's case the fœtus was six months old, dead about one week; cord around the neck, and separated from the placenta at its attachment to it. At this point nothing was found but a shriveled stump filled with a coagulum of blood.

He has also given me the particulars of another case which occurred in his practice. In this one the fœtus was about three months, and the cord was wound around the neck three times, and passed under the left armpit. From the pressure of the cord the neck was very much thinned and drawn out.

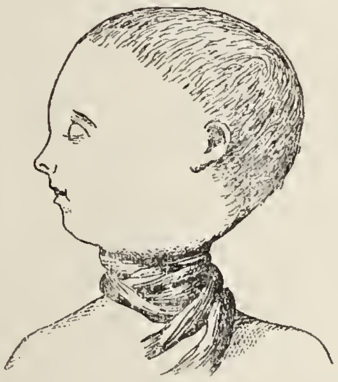

Fig. 12.

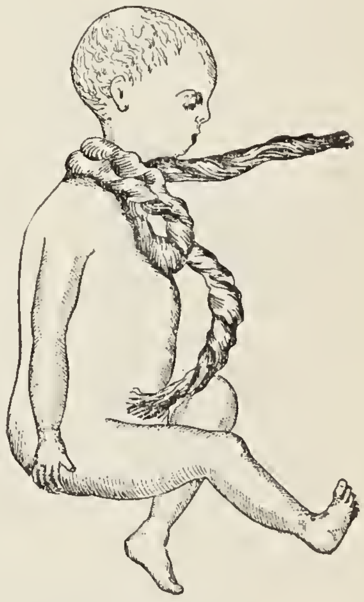

Fig. 13.

Cuthbert, in the *Trans. of the Edin. Obstet. Soc.*, 1875, reports the following case of strangulation *in utero:*

> Mrs. P., aged thirty years, multipara. Miscarried for the second time on March 29, 1874. Her last menstruation was on

December 17th; consequently, the fœtus was about three months and a half old. No reason could be assigned by the patient for the accident. On examination of the fœtus the cord was found coiled twice around the neck and, under the coiling, it was tightly tied in a single knot. The part of the funis from the umbilicus to the neck was completely on the stretch, and its whole length, from insertion in the placenta to the umbilicus, was about seventeen inches, or two times and a half the length of the fœtus. The part continuous with the fœtal circulation was round and of a natural size, but the other part—viz., from the neck of the fœtus to the placenta—was small and cordlike.

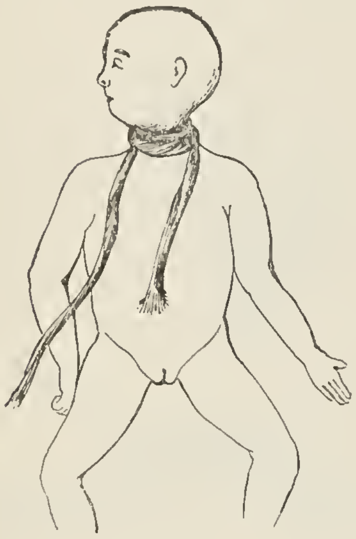
FIG. 14.

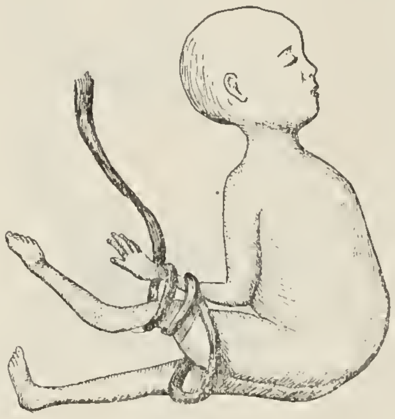
FIG. 15.

There can be no doubt that the death of the fœtus and, consequently, the miscarriage, was caused by the tying and coiling of the funis around the neck. Probably it was also hastened as the fœtus grew larger by putting the smaller part of the cord on the stretch, which would tend to tighten the knot and coils. At the same time it would also stop the circulation.

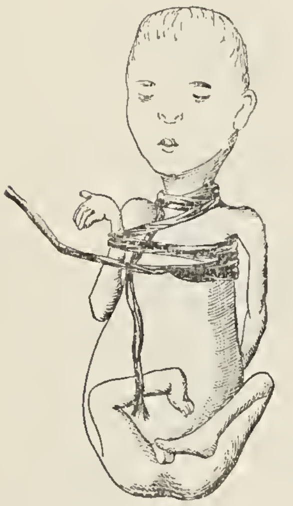
FIG. 16.—Trélat's specimen.

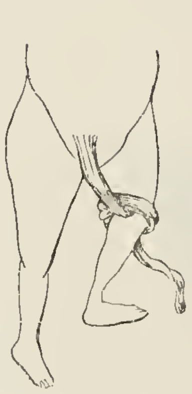
FIG. 17.—Adam's specimen.

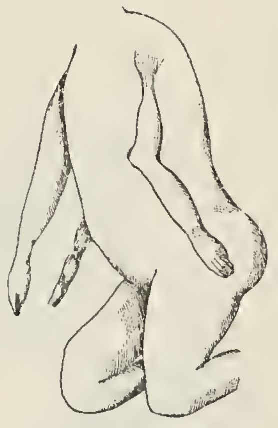
FIG. 18.—Beatty's specimen.

As far back as 1823, Jameson, in the *American Medical Recorder*, reports a case, with illustration (Fig. 8), where the death of the fœtus was the consequence of the funis having been tied around the body, the cord being of unusual length. The abdomen was almost cut in two by the constriction of the cord. It was one of twins, delivered at nearly full term, dead and somewhat macerated.

In cases of illegitimacy, the newborn child being frequently murdered by strangulation, this condition is of very considerable medico-legal importance.

In the *London Medical Gazette*, vol. xxxvii, Foster reports the following case:

> He was called to a lady in labor with her first child. The labor was tedious and the child's head large. It was born dead, with the cord wound three times around the neck and under the right armpit. After removing the cord, three discolored parallel depressions were distinctly seen extending around the neck, corresponding to the position occupied by the coils of the funis. The child appeared to be strangled.

Had the mother been unmarried, and the child secreted, it would have been looked upon as a case of murder. In children who have not respired these discolorations on the neck are generally the result of accidental pressure from constriction by the cord. It is not improbable that women have been unjustly condemned in these cases. There are instances on record where females have used the cord for the purpose of strangulation.

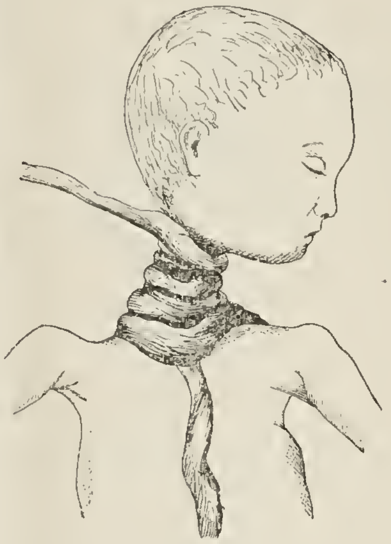
FIG. 19.—Blume's specimen.

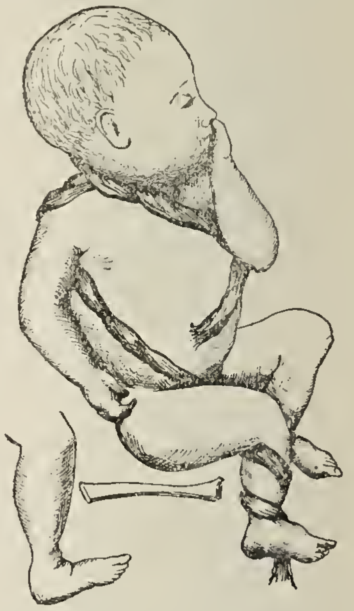
FIG. 20.—Siebold's specimen.

In my practice of obstetrics I have also often seen the influence a short or coiled cord has in obstructing labor. This condition, along with cases, has also been noticed by McSherry, Werder, Keiley, Campbell, Lusk, A. Lapthorn Smith, and others. In these cases there is delay without any apparent cause, and, when the forceps is applied, there may be either rupture of the cord or sudden detachment of it with placenta from the uterine wall, or an acute inversion

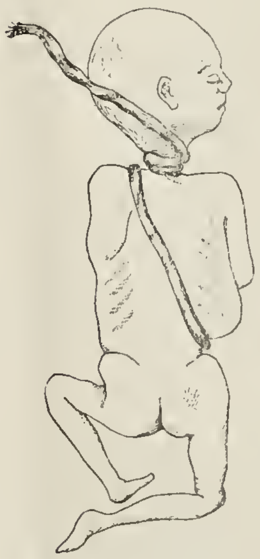
FIG. 21.—Hillairet's specimen.

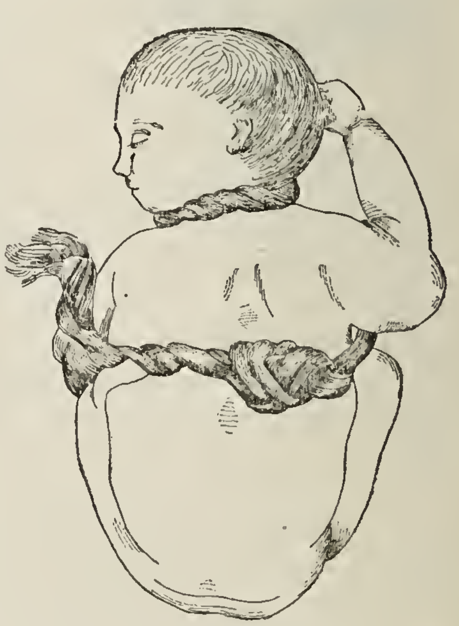
FIG. 22.—Taken from Smellie.

of the uterus. To my mind there can be no doubt but this shortness or coiling of the cord is frequently the cause of accidental hæmorrhage. In one case reported, the umbilical cord was torn away from its attachment at the navel and the intestines protruded through the opening. I have seen an infant with the cord wound four times around the neck. I make it a practice in every case to examine the neck for the cord and see if an immediate or hurried delivery is indicated. I run my finger down the back and side of the neck until it touches the shoulder, to ascertain if the cord is around the neck. Excessive coiling about the neck sometimes prevents flexion of the head upon the sternum, and this prevents the occiput from presenting. Besides the danger to the infant, this condition also causes danger to the mother by intensifying her sufferings and increasing the delay, and it also tends to exhaustion. The following cases, in this connection, show the delay resulting from shortness of the cord :

Mrs. D. T., aged twenty-six years, primipara. Labor normal with the exception of considerable delay after the child's head had reached the perinæum ; the pains being very powerful and neuralgic. The moment the head was delivered, it was noticed that the cord was wound tightly around the neck three times. At the moment of delivery the placenta followed immediately, drawn out by the shortened cord.

There can be no doubt that the coiling and shortening of the cord are also very frequently the cause of prolonged delay at the inferior strait. In this connection the following case is interesting :

Mrs. N. J. S., twenty-eight years of age, pregnant with her second child. Her first labor was normal. During the first part of this present labor she assumed a kneeling position by the advice of her nurse. She called the attention of her husband several times to the fact that whenever she stretched her arms upward, even slightly, it produced a dragging sensation in the umbilical region, and this led her to believe that the cord was wound around the child's neck. The labor lasted nine hours, and during the second stage her sufferings were intense, and chloroform was required as the head presented at the vulva. I examined carefully to see if the umbilical cord was wound around the child's neck, and sure enough it not only tightly encircled the neck, but passed under the axilla and across the back. I hastened delivery by the forceps. The child was deeply cyanosed, and the cord was very thin and pulseless. A resort to artificial respiration in this case soon caused the child to breathe freely.

The mother's apprehension of trouble here seems to be founded on a fairly plausible theory, viz., that when the mother performs certain movements, the child performs the same movements, through either imitation or instinct. At any rate it is a firmly rooted belief among many of the knowing old women that pregnant women should not reach upward lest they cause entanglement of the cord. This theory may strike the reader as rather fanciful, but be this as it may, it should not be forgotten that most popular notions, no matter how fantastic, are often founded on a certain amount of fact.

A. F. A. King treats this condition by changing the woman's posture to a sitting, kneeling, or squatting one. By this means he believes the power to labor is increased and the delivery often rapidly terminated, and that it is a better and safer method than by the forceps. Among the advantages alleged for posture are that the weight of the child assists by gravitation, the woman has much greater power in bearing down, and the uterus and its contents are forced more deeply into the pelvis. There is no question but that the abdominal pressure is increased by a sitting or squatting posture, as is well shown in the act of defecation ; that this was well known by the older writers is shown by the great variety of stools and chairs they used for obstetric cases. The Japanese, West Africans, American Indians, and others, assume the sitting or squatting posture, which is probably the most natural in delivery. The postural treatment has undoubtedly a tendency to somewhat relieve the shortened cord in these cases. For myself, I think that the abdominal contents and the uterus can be more easily emptied in a sitting or, much better, a squatting posture than in the recumbent position. This can easily be seen if we consider the anatomical conditions present and the direction and traction of the muscles involved.

THE NUTRITION OF INFANTS
FED UPON RAW, BOILED, PASTEURIZED, AND STERILIZED MILK.

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Soon after the presentation of the sterilization of milk for infant use the conversion to its general adoption was, one might say, general. It was seen that not only was the Soxhlet procedure well borne by the infant, but certain serious gastro-intestinal disorders common to infancy in the summer months were more easily controlled by its use, and some went so far as to assert that the mortality of infant life was reduced during the hot term. It will be seen that such an enthusiastic and general adoption of the sterilization of milk would not have been possible were there no grounds for such a course, at least partially so. Those of us whose experience antedates the introduction of the Soxhlet procedure would be first to realize the loss to infancy were we to-day deprived of its use. Under the above conditions, it was to be expected that opposition should finally come forward after the first wave of enthusiasm had subsided, and this was so, for in 1891 Leeds and Davis, working in Philadelphia, contended, apparently upon scientific and clinical data, that not only was the sterilization of milk for infant use detrimental, but the infants so fed actually suffered a slow process of starvation. That class of physicians who tenaciously held to the old, because, perhaps, it was too difficult or inconvenient to follow the new, shook their heads wisely, and the sterilization of milk for infant feeding and its accompanying modifications were labeled as a fad and its adoption sadly hampered for a time. The work of Leeds and Davis had certain deficiencies which were glaring to those whose experience compelled them to work in similar lines. While repeating the experiments of Munk, who proved that the casein of the milk was digested artificially with greater difficulty as the milk was heated above 70° Celsius, they failed to show how this directly interfered with the real stomach and intestinal digestion of the same casein in the infant. The proposition to sterilize the milk at 70°, or below, by Leeds and Davis, was founded upon work tending to show that actual sterilization at this point is possible. This Pasteur and Hueppe and many others have proved beyond a doubt to be impossible. In fact, even 100° Celsius does not completely sterilize milk, as the author and Flügge have shown, following the footsteps of Hueppe. Again, in the clinical data brought forward by Davis to support the scientific dicta of Leeds, many of us involuntarily gained the impression that much of the material and its pathological and clinical aspects could be duplicated by sets of similar cases seen before the introduction of sterilized milk. In fact, the cases of marasmus brought forward by Davis as a proof of starvation from the use of sterilized milk were seen, and still are to be seen, in places and institutions where the sterilization of milk *à la* Soxhlet is unknown. In other words, the cause of starvation in these infants must be a deeper-seated one than that seized upon by the distinguished American writers to prove their position.

One of the most noted objectors to the position taken by Davis in the article above mentioned was Escherich. This author asked for more definite data, especially as his experience, which was certainly as extensive as that of Davis, differed widely from the conclusions drawn in the American brochure. Heubner, while still working in Leipsic, showed that there was an actual increase in the weight of infants placed exclusively upon sterilized milk. Not that this fact was not widely recognized, but it seemed necessary to stem the tide of distrust awakened against one of the greatest advances in the management of artificially-fed infants. Heubner, in a recent article, does not deny, nor does any other pædiatrist, that there is a certain proportion of cases coming under the heading of infantile atrophy, or the term marasmus, which the sterilized milk and its modifications does not reach. These cases are mostly those of children in institutions, who have spent much time within the walls of the same. This author shows from actual statistics, however, that a very large percentage of cases of chronic intestinal disorders of a variety incurable before the introduction of sterilized milk are improved and cured by the same. It is foreign to the main theme of this paper to enter into all the details, pedantic and scientific, which certain earnest workers have brought forward since the time of Soxhlet's first paper in modification of the procedure of sterilizing milk.

I assume that most pædiatrists will grant that the position of Heubner is correct: that a percentage, variable, of cases of chronic intestinal catarrh with atrophy are not benefited by sterilized milk. I shall, however, endeavor to show that this shortcoming in the sterilized milk is not at all a matter of heating to the degree of sterilization. It is not, as supposed formerly, a matter to be decided between the process of *pasteurization* or *sterilization*, as a certain German author has recently held, but is a matter, perhaps, inherent in the nature of the food itself, whether the food (milk) is ingested raw, boiled, pasteurized, sterilized, with or without the combination of breast milk. In approaching the subject I shall first show the inherent difference between the foods ingested by the breast-fed infant (mother's milk) and that of the artificially fed infant (cow's milk), and we shall also show in just what degree assimilation of these foods proceeds in the stomach and intestinal digestion of the infant. In the artificially fed infant we shall endeavor also to show how sterilization, or pasteurization, or boiling, may be practically excluded in the consideration of these important problems in connection with artificially fed infants, and how our attention must be directed in another channel to explain certain deficiencies in these infants.

The Casein of Cow's Milk and the Casein of Mother's Milk.—In the casein of mother's and cow's milk we have the bulk of the albuminoids which go to nutrition of the infant. The fats are for the present not under consideration. The earliest writers—Meigs, Dogiel, Soxhlet, Struve, Schmidt—thought that the only difference between human and cow's milk consisted in the amount of casein in the same. That the casein of both varieties of milk was chemically identical was thought to be an accepted fact. Soxhlet (1893), Dumas, and Cahours made comparative analyses of the casein in the various animal species; but it was reserved for Hammarsten to first suggest that the difference between the two varieties of casein (human and animal) was a fundamental one, entirely apart from chemical composition. Wroblewski, in a most interesting contribution to this subject, made the discovery that the casein of woman's milk and that of cow's milk certainly showed differences in artificial digestion—experiments which seemed to confirm the suspicions of Hammarsten. He found that the strongest solutions of pepsin were insufficient to dissolve the paranucleins deposited from cow's milk, whereas the nucleins of mother's milk never separated either with human or with animal pepsin digestion. The experiments performed with pepsin of the stomach of the child led to much the same results as the animal pepsin experiments, except that the nucleins were separated in a finer and a more flocculent precipitate with the human pepsin. The nucleins, an ever-increasingly important class of substances, proteids rich in phosphorus, were therefore separated from the casein in the digestion of casein obtained from cow's milk; whereas this was not recognized to be the case in mother's milk. It would lead us too far to go into the nature and importance of the nucleins; they can no longer be ignored, and their importance requires more exclusive study than can be devoted to them in this paper. Their presence in milk is a sign of some purpose, and the peculiar action of the paranucleins in the digestion of cow's milk should arrest our thought.

We will now try to consider briefly the studies upon the assimilation and excretion of nitrogen contained in the above forms of albuminoid bodies. Von Noorden showed that not only the stomach, but the intestine is the seat of digestion of the nitrogenous substances ingested into the economy. In cases where the stomach digestion could be entirely excluded, he showed that milk was absorbed and assimilated in a most satisfactory manner. This seems to the writer important, for in the infant the amount of peptone proved to be present and formed in the infant's stomach has been repeatedly shown to be so infinitesimal, though undoubtedly present, that Epstein, Raudnitz, and others assumed that as fast as the peptones are formed they pass into the gut. But in the infant the principal rôle in digestion is probably played by the gut, and this would be in conformity with experiments of von Noorden in the adult with milk diet—though milk is badly assimilated in the adult subject, at least not so well as in the infant. *The stomach* in the infant probably plays an *introductory rôle* in furnishing its ferments and causing preliminary preparation of caseins. Boas shows that the pancreas in the adult has a peptonizing action upon milk, though experiments in children in this direction have not yet been made.

Most authors, Voit, Pettenkofer, Rubner, von Noorden, Camerer, and many others, admit that the amount of nitrogen found in the urine, fæces, and sensible perspiration is an index of the amount of nitrogen assimilated in a given fixed dietary. Von Noorden finds that a few days after the inauguration of a uniform diet the amount of nitrogen found in the fæces is quite constant, whereas in the diet which is variable the nitrogen will vary widely. However, von Noorden finds that under a minimum allowance of diet he can reduce the nitrogen in the fæces to almost nil. But when the minimal limit is passed, the nitrogen is supplied from the tissues themselves, and the nitrogen is increased in the fæces above the quantity seen in the fæces of those living on the minimum quantity of food necessary to existence. In plain words, the system lives on its storehouse of nitrogen, and starvation results. When an excess of food, as milk, is ingested, there is not an increase of nitrogen in the fæces, but the nitrogen not needed is stored in the tissues and increase of weight results up to a certain limit.

Tschernoff was the first to establish the apparent paradox that in infants whose digestion, intestinal or stomach, is disturbed, or who are ill in a manner to react on the processes of the stomach and gut, the amount of nitrogen in the fæces for a given weight of fæces is less than in health; in health there is more nitrogen excreted through the fæces. Lange explains this apparent paradox—for it implies a waste in health—by the fact that in illness the fæces are much more dilute than in health, and that a given portion of the same would therefore contain less nitrogen. Lange shows the nitrogen excreted for the whole day in some cases thirty per cent. more than in health. Again, the fæces in unhealthy infants contain more fat, and this in a manner accounts for the decrease of nitrogen in a given portion of fæces. Lange made a number of extremely interesting observations in which he established that, though mother's milk was taken up and best digested as to its nitrogen by the gut, yet a sufficiently diluted quantity of cow's milk containing sugar of milk and well sterilized was also satisfactorily disposed of. Lange operated upon younger subjects—nurslings—than Bendix. The work of Bendix is of especial interest in reference to the needs of older children who have been used to a mixed diet. His work, however, would not entirely be valid to draw conclusions as to the needs of nurslings. Bendix experimented upon children two to two years and a half old respectively. He put them upon a diet of white bread, chocolate, and for the most part milk sterilized and unsterilized. He comes to the general conclusion that in *these older* children the nutritive properties of the sterilized and unsterilized milk are about equal; but that disturbances of digestion diminish resorption, but not more so with the sterilized than with the unsterilized milk.

The question now naturally presents itself, How much nitrogen is necessary to maintain the nutrition of the economy, and especially of the infant?

Voit, quoted by Peschel, showed that the minimal quantity of albuminoids necessary to maintain a sound man in health was a hundred and eighty grammes per diem. Rubner, F. Hirschfeld, Kumagawa, and Klempere have shown that this figure is too high, and that albuminoids if rich in nitrogen are only needed to the extent of thirty to forty grammes daily. Though we can not draw conclusions from a minimal quantity of nitrogen, yet such experiments show that under the minimal regimen the body on the fifth day ceases to void nitrogen. An excess over the minimum is always necessary to the maintenance of health in the adult.

In the infant, Fehling found, experimenting upon the newborn, that in every hundred parts of the organism there was from 11·8 per cent. to 17·8 per cent. albuminoids containing nitrogen. Vierordt assumed that the mean for the first year of life was fourteen per cent. (Lange), which would give 2·24 per cent. nitrogen. Camerer found that fully twenty to sixty-five per cent. of the ingested nitrogen in the infant was taken up in the economy. This nitrogen does not all go to making up the increase of body weight of the infant. In atrophic children we find a marked nitrogen deficit, which, according to Camerer and Vierordt, is so great as not to be mistaken. What becomes of this nitrogen which is not taken to make body increase? Vierordt thought that it could be relegated to the heading of "perspiratio insensibilis," but this is not in accord with the investigations of Pettenkofer and Voit, who showed that in man and in carnivora no such nitrogen is excreted by the skin in the form of gaseous exhalations. Again, von Noorden after this proved that excess of food does not necessarily mean increase of body weight. The increased functions of the gut demand ten per cent. or more of the caloric values under these conditions. Lange thinks that the above-referred-to nitrogen deficit can be explained by the great demands of the growing organism. The immense number of new-formed cells find no analogy in the adult subject. Von Noorden has found in convalescents from disease and in the rapidly growing organism the above-mentioned cell needs, if we might so call it, a striking feature. During growth the economy has a reserve of albumin or nitrogen. In other words, the newly formed cells of the growing organism take up nitrogen which does not finally appear as increase of body weight. Partly, also, we have nitrogen used up in the metabolic processes of the gut (Camerer, von Noorden), and probably in the mycotic processes of the same (Biedert).

In the above we have endeavored to show that in the nitrogen taken up in the system we have a clear and definite index as to the assimilation of albuminoids ingested into the economy. We can draw certain conclusions from a balance sheet drawn up to show in a given diet the amount of nitrogen excreted and the amount ingested, the amount which has been wasted in proportion to that ingested.

Original Investigations.—In my own work I have endeavored to determine from the amount of deficit or loss of nitrogen the relative nutrition of children brought up upon a milk diet, boiled, pasteurized, sterilized, or combined with the breast. The infants were all nurslings, and the line of work consisted in placing them first upon a variety of milk, as in Cases III and IV, and then in the same infant after a week cease, mark off the movements thoroughly with some such substance as cranberry jelly, and then place the same infant, hitherto upon pasteurized or boiled, upon sterilized milk and in one case upon raw milk. The assimilation of the various kinds of milk could be thus accurately observed in the same infant and, we think, justly compared.

My methods of analyses were directed only to the fæces, as these cases were ambulatory, and I did not know of any method of collecting the urine so that the eventual result could be relied upon. The Epstein method of collecting urine can only be applied in children lying quietly in their cribs. But as all my investigations included a careful analysis of the fæces and their computations, certainly this gives us a useful index of the principal source of nitrogen loss to the system. Only cases in which I could be morally certain of methods and results were experimented upon. The food for the day was always accurately computed, the fæces carefully collected from the diaper, and each day's fæces were thoroughly dried in an oven at 95° to 100° Celsius for ten days at least to constant weight; the nitrogen in the fæces of each day separately calculated. Bendix and others have thrown the fæces together, dried a week's fæces, and made two or more computations of nitrogen. As will be seen from a study of our tables, such methods do not show the nitrogen variations from day to day, and with such methods the absolute quantity of nitrogen excreted in the fæces for the week can not be computed; only average figures are thus obtained by Bendix. In the method pursued by the writer no fewer than fifty nitrogen determinations were carefully made; each day's fæces were determined separately, and thus the absolute quantity of nitrogen in the fæces for a week could be computed and no averages were made use of.

The Kjeldahl method was used to determine the nitrogen.

Cases.

Case I.—Oscar S., perfectly healthy infant, aged three months, fed upon the breast and sterilized milk. Weight, eleven pounds and fourteen ounces; mother healthy, child not suffering from any present dyspeptic disturbances. The sterilized milk obtained from a well-known establishment, sterilized in quarts, and the requisite quantity for the babe poured off and mixed with water. Inasmuch as it is impossible to compute in this case the quantity of breast milk taken, the case is instructive to show only the percentage of nitrogen voided in the fæces.

Oscar S. Breast and Sterilized Milk.

Days.	Dietary.	Moist fæces.	Dry fæces.	Per cent. of dry to moist fæces.	Per ct. of nitrogen.	Total nitrogen.
1	Breast and ℥ viij milk.	13·067	3·279817	25·1	3·5	
2	" " ℥ vj "	14·4635	3·702656	25·6	4·4	
3	" " ℥ ij "	6·058	1·33881	22·1	Lost.	
4	" " ℥ ij "	4·747	1·59863	33·7	2·8	
5	" " ℥ ij "	22·562	6·61066	29·3	2·3	
6	" " ℥ ij "	12·242	3·24393	26·5	3·0	
		72·72235	19·774503			

This is the only case in which we might average the percentage of nitrogen voided in the fæces; it would give a percentage of 3·2 per cent. computed upon five days.

Case II.—Alice K., aged three months, one week, and four days; weight, eleven pounds; in good health; takes the same sterilized milk as Case I, but without the breast. Child suffers from no dyspeptic disturbances. Six days' feedings were computed in this case. A study of the table shows that in this time the infant ingested 2,880 grammes of milk. This bulk when dried would weigh 339·84 grammes, and would contain 14·61312 of nitrogen. We found that 0·84888 gramme was lost in the fæces, a net result of 5·8 per cent. loss.

Note.—Several samples of milk were dried and an average of the milk supplied showed the dried milk to be 11·8 per cent. of weight of the whole milk.

Alice K. Bottle-fed upon Sterilized Milk only.

Days.	Dietary.	Moist fæces.	Dry fæces.	Per cent. of dry to moist fæces.	Per cent. of nitrogen.	Total nitrogen.
1	℥ xviij milk.	14·742	3·81817	25·9	3·2	
2	℥ xvj "	19·3265	5·7397705	29·7	2·9	
3	℥ xvj "	29·493	5·5099	19·7	4·6	
4	℥ xiv "	18·745	4·799975	25·6	1·9	
5	℥ xiv "	24·045	4·74675	23·9	2·04	
6	℥ xviij "	19·225	4·940825	25·7	2·4	
	96 ounces.	125·5765	29·53858			0·84888 +

Balance sheet of Alice K.: 2,880 c. c. milk ingested, 339 grammes dry milk ingested = 14·61312 nitrogen ingested, 0·84888 nitrogen lost in fæces = 5·8 per cent. lost in fæces of total taken into system.

Analyses of this dried milk showed 4·3 per cent. nitrogen.

It was not possible in either of the Cases I or II to change the diet of the infants as in the succeeding cases. The children were private patients, and the mother and foster-mother appreciated too keenly the responsibility of their charges to encourage us to suggest a cautious change, as had been successfully tried in the two following infants. The figures obtained, however, are useful in giving us data as to nitrogen deficit, which agree fully with what follows in Cases III and IV.

The figures show also how different the computations of nurslings must be from older children. In Bendix's work the older children voided fully twice the quantity of nitrogen in the fæces, and these figures in older children above the age of one year resemble very much those seen in the adult, as can be confirmed by study of the work of von Noorden in the adult subject. The percentage of nitrogen excreted in the fæces varies daily much the same in the child fed upon the breast and sterilized milk as in the child fed upon sterilized milk. The nutrition in both infants was and is still, with the same foods, excellent, the increase in weight all that can be asked.

In the two following cases we have two infants who were successfully studied under a diet of pasteurized, sterilized, boiled, and raw milk. The results thus obtained must appear to all to be of value as indicating the degree of assimilation and digestion of the various foods in the same infant.

Case III.—Frank M., aged twelve weeks.

Family History.—Parents well; one stillborn child a year ago; a twin to Frank died a few minutes after birth.

Personal.—Child was well when born; would not take the breast; mother had plenty of milk; baby was emaciated when born; mother put it on cow's milk and water, equal parts. Child always had trouble with his bowels, always constipated, and for two or three days would have no movement unless castor oil was given; then the movement would be gray and hard.

Status.—Child somewhat atrophic; fontanelle 3½ × 2½ centimetres; skin of face wrinkled; has an old expression; sucking pads prominent; mucous membrane of mouth pale; tongue coated; throat normal. Chest bones very prominent; lungs negative; heart, apex beat within the nipple line; abdomen, veins prominent, note tympanitic; liver and spleen normal; extremities, folds in gluteal region, and upper thigh give evidence of emaciation; sleeps poorly; bowels constipated; respiration, 24; pulse, 104; temperature, 99°.

It must be distinctly noted that the subject in Case III, though not a normal infant, was not suffering active disturbances of digestion at the time of experimentation. His condition was vastly improved as compared to the condition of the infant before it fell into our hands. The increase in weight proves the success of our care. Yet I should not call this infant healthy, for it was atrophic, and on this account think the data obtained are extremely valuable as showing that the amount of nitrogen excreted in the fæces and loss is not more than in the healthy infant, which we consider Case IV to be.

In my introductory remarks I showed that in infants whose condition entitled them to the term atrophic there was a disappearance of nitrogen in the system not accounted for by the increase of weight. In other words, cell metabolism goes on just the same as in the healthy infant. If a comparison is made in this infant between the total amount of nitrogen excreted in the fæces in the week under pasteurized milk, we find it to be much the same *in toto* as in the week upon sterilized milk—0·5114642 gramme with pasteurized milk, as against 0·685835 with the sterilized milk. The same infant lost of its total amount of nitrogen ingested 4·6 per cent. in the fæces under pasteurized milk, as against 4·9 per cent. in the fæces under sterilized milk. We can scarcely say that the 0·3 per cent. in favor of the pasteurized milk entitles us to draw any conclusions in favor of the pasteurized form of food.

Frank M., aged Three Months. Pasteurized Milk, 70° C.

Days.	Ounces of milk.	Moist fæces.	Dry fæces.	Per cent. of dry to moist fæces.	Per cent. of nitrogen.	Total nitrogen.
1	℥ viij.	8·521	2·4029	28·2	2·5	0·0600725
2	℥ xiij.	10·010	2·7427	27·4	2·8	0·0767956
3	℥ vij.	4·0275	1·02701	25·5	3·1	0·03183731
4	℥ ix.	12·1155	2·5684	21·2	3·02	0·07736568
5	℥ x.	12·5355	2·79541	22·3	2·6	0·07268066
6	℥ x.	17·8945	4·15152	23·2	2·7	0·11208104
7	℥ xij.	12·0365	2·7804	23·1	2·9	0·0806316
	Total nitrogen for seven days.					0·5114642

Total milk ingested in seven days, 2,370 c. c.; total dried milk, 303·36 for seven days; total nitrogen 10·92096 taken in milk; total nitrogen 0·5114642 lost in fæces = 4·6 per cent. of the total ingested nitrogen lost in fæces.

Case III.—*Frank M., aged Three Months. Dietary, Sterilized Milk, 100° C.*

Days.	Ounces of milk.	Moist fæces.	Dry fæces.	Per cent. of dry to moist fæces.	Per cent. of nitrogen.	Total nitrogen.
1	℥ xij.	10·1825	2·0975	20·6	3·03	0·06355425
2	℥ xvjss.	14·8375	5·453905	23·2	3·0	0·16358715
3	℥ xvj.	9·2645	2·230891	24·08	2·5	0·055972275
4	℥ xviij.	20·1425	5·249135	26·06	1·7	0·089235295
5	℥ xv.	24·4635	5·969094	24·4	2·4	0·143258256
6	℥ xij.	13·3525	3·231305	24·2	2·7	0·087245235
7	℥ x.	13·5815	3·1916525	23·5	2·6	0·0829829650
	Total nitrogen for seven days.					0·6858350

Balance sheet: Total milk, 2,985 c. c.; total dry milk, 382·08, this contains 13·74488 nitrogen; 0·685835 nitrogen lost in fæces = 4·9 per cent. loss.

Frank M., aged Three Months. Dietary, Raw Milk.

Days.	Ounces of milk.	Moist fæces.	Dry fæces.	Per cent. of dry to moist fæces.	Per cent. of nitrogen.	Total nitrogen.
1	℥ xij.	6·6375	1·440337	21·7	3·2	0·0460908
2	℥ ix.	15·6625	4·0879125	26·1	2·4	0·981099
3	℥ xviij.	4·836	1·078428	22·3	2·9	0·5174412
						0·1959448

Balance sheet: Total milk, 1,170 c. c.; total dry milk, 149·76, this contains 5·39136 nitrogen; loss nitrogen in fæces (three days) = 0·1959448 = 3·4 per cent. loss nitrogen.

The same infant was placed upon the use of raw milk, and it was not possible to keep up this regimen longer than four days, for we found that even with great care a warm day in midwinter would sour the milk. But we did find, as will be seen by consulting the tables, that for three days the percentages of nitrogen in the fæces ran much the same as they did upon the pasteurized and sterilized milk. The total loss to the system in the fæces for three days was 3·4 per cent. of the total nitrogen ingested. These figures, of course, take no account of the loss through the urine.

There is one point, however, in this case which is of great interest, and that is the small amount of total fæces voided. By comparing with Case IV, which I consider a case as free from objection scientifically as we could select, it appears the residue as to fæces is small. Yet the infant obtained sufficient food, as shown by the increase in weight, its increased and rapid improvement under our care, and the nitrogen excreted in the fæces; for, had the food been insufficient, not only would the infant not have increased in weight, but the nitrogen in the fæces would have been reduced to a minimum, as established in the adult under a minimum milk diet by von Noorden. It may seem at first glance that the 0·3 per cent. in favor of pasteurized milk less nitrogen excreted in the fæces might be a nail on which to hang an argument in favor of the pasteurized milk. Especially is this striking when we find that during the three days of raw milk the nitrogen excreted in the fæces and its total percentage to the total nitrogen ingested was 1·5 per cent. less than with the sterilized milk; but this is a hasty conclusion. A study of my tables shows that in the absence of any dyspeptic symptoms the amount of nitrogen excreted daily differs widely—from 1·7 per cent. to 3·2 per cent.—under all diets. The nitrogen if low one day in the fæces is apt to be higher next day. This shows a variety of compensatory work carried on in the gut which our present methods do not reach. We must judge also by the increase in weight of the infant as well as by the nitrogen excreted. There is a point in these infants in which the smaller loss is compensated by a gain in the nitrogen excreted, resulting in a net balancing of all the nitrogen excreted to the same figure. I think that in the case of the raw milk a week or more would show possibly a figure much like that seen with the other forms of milk. In view of the wide excursions—from 1 to 0·5 of one per cent. or 1·5 per cent. difference—in the amount of nitrogen excreted, I think all careful observers will agree that from such figures alone we are not justified in concluding that the raw milk was more favorable to nutrition than the pasteurized, or the pasteurized than the sterilized. The infant all through the experiment, in spite of the variations and changes, actually increased in weight and improved, though in a miserable state before it fell into our hands. I may say in conclusion that this infant has been kept upon a form of sterilized food ever since the cessation of the above work, and after a month shows remarkable improvement, gradually leaving its signs of atrophy behind.

Case IV.—We now approach the fourth case. This child, before it fell into my hands, had been badly fed upon cow's milk and patent foods. I started it upon a milk diet, and when it had advanced to a condition which I could call normal, being free from dyspeptic symptoms and increasing in weight, I began a study of its nutrition. I studied the assimilation of two main forms of food milk which had been simply brought to a boil and then taken off the fire, diluted, and given to the infant, and milk carefully sterilized at 100° Celsius by the writer's assistant, Dr. Lewi.

Case IV.—*Fred. S., aged Five Months. Dietary, Milk brought to a Boiling Point.*

Days.	Amount of milk.	Moist fæces.	Dry fæces.	Per cent. of dry to moist fæces.	Per cent. of nitrogen.	Total nitrogen.
1	℥ xvj.	29·910	5·563260	18·6	3·3	0·183587580
2	℥ xxx.	35·890	7·654570	21·3	3·1	0·23729167
3	℥ xxx.	36·080	7·432480	20·6	2·8	0·208109440
4	℥ xxxv.	46·3225	9·357145	20·2	2·5	0·233928625
5	℥ xxv.	28·033	6·05512	21·6	3·1	0·18770872
6	℥ xxx.	50·980	8·46268	16·6	2·8	0·23695504
7	℥ xxx.	42·300	8·1216	19·2	2·6	0·2111616
	Total nitrogen for seven days					1·498742675

Balance sheet: 5,850 c. c. in milk ingested = 725·4 dry milk; 725·4 dry milk contains 32·643 nitrogen for seven days, of which 1·498742675 lost in fæces = 4·5 per cent.

Note.—In calculating the amount of milk taken, the amount noted in all the tables is that taken by the infant between the movements.

Fred. S., aged Five Months. Dietary, Sterilized Milk at 100° C.

Days.	Ounces of milk.	Moist fæces.	Dry fæces.	Per cent. of dry to moist fæces.	Per cent. of nitrogen.	Total nitrogen.
1	℥ xv.	9·030	1·88727	20·9	2·9	0·5473083
2	℥ xxx.	30·310	7·06223	23·3	3·4	0·24011582
3	℥ xl.	40·805	7·222485	17·7	4·3	0·3105648
4	℥ xx.	14·270	3·86717	27·7	3·01	0·116401817
5	℥ xxxv.	33·655	4·509770	13·4	3·2	0·1443126
6	℥ xv.	4·3325	1·048465	24·2	3·1	0·03250241
7	℥ xxx.	34·500	9·108	26·4	2·7	0·245916
	Total nitrogen for seven days					1·14454437

Balance sheet: 5,550 c. c. milk taken in; 688·2 dry milk taken in. This dry milk contains 30·969 nitrogen; 1·14454437 nitrogen lost in fæces in seven days = 4·3 per cent. loss nitrogen in seven days.

A study of the total nitrogen excreted by this infant will only confirm the justice of the author's conservative views on the previous cases. It will be found, in the first place, that the amounts of nitrogen excreted in the fæces in both forms of diet differ widely in this case as in the previous ones, from 2·5 per cent. to 4·3 per cent. under both forms of diet. Moreover, the total loss to the system of nitrogen voided in the fæces was less under a strictly sterilized milk diet (4·3 per cent.) than under a diet of milk, which approached the pasteurized milk (4·5 per cent.), being 0·2 per cent. in favor of the sterilized milk. The contention of the writer in Case III not to conclude from the favorable 0·5 per cent. in favor of the pasteurized milk is therefore seen to be not without ground, for in this case the tables seem at first glance to be turned in favor of the sterilized milk (0·2 per cent.); but the truth is in the fact of the varying quantities of nitrogen excreted in the fæces, varying under certain laws we have yet to explain.

It may be mentioned as a corollary to the foregoing that this infant from the moment it was under observation to the present day has continued to improve on both forms of diet, boiled milk and sterilized milk. Under the sterilized milk there has been a steady increase in weight and general normal growth. We must note here the large amount of fæces, dried and moist, as compared with that of the atrophic infant in Case III, showing that the atrophic infant with fully the same amount of total nitrogen in the fæces (4·3 per cent. to 4·9 per cent.) had much less fæces, but at the same time the increase in weight was almost as great in one case as in the other.

Case IV.—Fred. S., aged five months. Father and mother healthy. Child brought up on cow's milk and water. At the age of three months and a half had a sharp attack of diarrhœa which lasted two weeks. A month after this infant had another attack of indigestion, and this time there were convulsions, evidently connected with the inefficient attempts at feeding and subsequent intestinal mycotic disturbances. When brought to the dispensary the infant had seven to eight movements daily; its diet was very dilute milk and oatmeal water. It had convulsive twitchings and convulsions, which were diagnosticated as due to toxic intestinal absorption. The diet was regulated, and under treatment the infant improved and throve, and when in an apparently normal condition studies on its nutrition were begun. Initial weight, eleven pounds and three quarters. At the end of fourteen days' observation, as noted in this paper, the infant had increased just a pound in weight.

We have thus placed infants upon raw, boiled, pasteurized, sterilized milk, and the breast, and also the breast combined with sterilized milk. In all cases a study of the writer's results will show that the amount of nitrogen excreted compatible with a condition of perfect health and increase of weight varied widely—from 1·7 per cent. to 4·3 per cent.; and that the total nitrogen of one observed week varied—in one case favoring sterilized, in another the pasteurized, milk by a small fraction of one per cent. The amount of nitrogen excreted with the fæces and the total loss of nitrogen to the economy is an index of the assimilation of the albuminous portion of the dietary; but it does not tell the whole story, for in spite of wide variations we see not only the atrophic, but the apparently healthy infant increase in weight and thrive. We must consider to a large extent the metabolism, the amount of work also in the cells and gut of each individual infant, and far above all these there is the truth hidden in the character of the foods ingested. It would be manifestly unjust to conclude, as some authors, that, because the nitrogen excreted in the breast-fed infant is much the same as that of the infant fed upon artificial food in the form of pasteurized or sterilized milk, the latter forms of food are fully equal to the breast. This, it seems to the writer, is a one-sided argument. Again, no comparisons can be drawn as to the nutrition of infants fed upon raw, boiled, pasteurized, and sterilized milk from the nitrogen excreted in the fæces, for an impartial study of cases experimented upon must lead to the conclusion that the main point at issue has been lost sight of in all these former experiments. Given a cow's milk to start with, the nitrogen excreted seems to be much the same whether we pasteurize, boil, or sterilize the milk. The casein of the milk is assimilated much the same in infants upon pasteurized, sterilized, or boiled milk, but assimilated fully as casein of cow's milk. The casein of mother's milk, as proved by the experiments of Wroblewski, is an entirely different body from the casein of cow's milk. Its casein has a nuclein and paranucleins which are readily assimilable; whereas in the cow's milk the nucleins are partly insoluble and indigestible. Thus we see clearly how another important element has crept into the problems of infant feeding independent of any mechanical manipulations to which the food of the infant has been subjected. This may explain many things not ready of solution by the mechanical methods of chemical analysis. The delicate albuminoids and animal bodies rich in phosphorus (nucleins and paranucleins) present in mother's milk can not be compared with those of cow's milk. Nor can we lay the failures of artificial feeding of the infant entirely to the door of the mode of preparing the food, as has been attempted by the American and German writers. Accept, first, the fact that we are dealing with cow's milk, and secondly, that we must give this food in a way to be free from objections (sterilization), but do not fasten on the mode of preparation an opprobrium which belongs at the start to the inherent nature of the artificial food itself. Future study must be directed upon the food and not the mode of its preservation. The preservation of the food and the limits of sterilization of milk, we think, are fixed and will not change until something better is suggested.

The authors who have presented the nitrogen excreted in the fæces as a mark of the digestibility of pasteurized and sterilized milks have lost sight of the fact that the nitrogen excreted in the fæces is indeed an index of the processes elaborated in the gut and the digestion of the milk, but only of the digestion of the casein, and this of the peculiar casein of cow's milk. Such methods lose sight of the all-important points hinted at above, points which play an important rôle in the nutrition of the infant.

This work was elaborated in the Carnegie Laboratory, and the author wishes to acknowledge his obligations to Dr. John A. Mandel, under whose direction the analyses were conducted.

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THE NEW ATMOSPHERIC GAS.[*]

By LOUIS FAUGÈRES BISHOP, A. M., M. D.

Occasionally a discovery in the allied sciences is so important and affects so directly the raw material upon which medical science is built up that, as physicians, we are entitled to participate in the satisfaction of the achievement. The following account of the discovery of a previously unknown though very abundant component of the atmosphere is taken chiefly from the accounts in the London *Nature*. The scene in the theater of the University of London just six weeks ago was in many respects unique as it certainly will be historical.

The Royal Society had invited two other scientific bodies to attend a meeting. The rush for tickets was such as might accompany the appearance of a great singer. It was known that Lord Rayleigh had succeeded in one of the most difficult of physical measurements, and had determined beyond the range of doubt the existence of a new and important element in the atmosphere. The existence of this gas had long been suspected. It was first suggested long ago by that curious and interesting figure in scientific history, Lord Cavendish, who in 1766 discovered hydrogen. One always thinks of Cavendish in his great house, filled to the roof with chemical apparatus, with the servants trained to understand by signs, lest in speaking they should disturb the train of his thoughts, and never to dust or disturb anything lest some experiment might be interfered with; the master of the house, a shy, reserved man, who devoted his fortune and his life to scientific discoveries. This remarkable man over a century ago suggested the presence in the atmosphere of a gas which has only been definitely described within six weeks.

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[*] Read before the Society of the Alumni of St. Luke's Hospital, March 12, 1895.

Cavendish's reason for believing that this gas existed was of the same nature as that which led Lord Rayleigh to undertake the investigation which has occupied him for some years. It was noticed that nitrogen, as obtained from chemical compounds, was about a half per cent. lighter than when extracted from the atmosphere. Some years ago this fact was much discussed in scientific circles. The natural inference was that the nitrogen of the air was diluted by some other gas. Lord Rayleigh and Professor Ramsay finally succeeded by a chemical method in extracting a heavier constituent from atmospheric nitrogen. This gas does not correspond to any previously known substance. It has been given the name of argon. It is very soluble in water, and it is therefore found that it exists in large quantities dissolved in rain water. Nearly every argument of chemical philosophy points to the fact that it is an elementary body. When announced six weeks ago its atomic weight was believed to be forty. But the world-wide discussion which has since taken place brings out the conclusion of a large number of chemists, from the facts produced, that it is probably twenty.

Argon is prepared from the air by comparatively a simple method. The air is freed from water and carbonic-acid gas by familiar methods; then the oxygen of the air is removed by red-hot copper, and there is left a mixture of nitrogen and argon. The nitrogen is now absorbed by red-hot magnesium, and we have argon remaining. The proportion of argon in the atmosphere varies from one twentieth to one one-hundred-and-twentieth, being about one hundred times more abundant than carbonic-acid gas. As yet no one has discovered any combination into which this curious substance enters, but its abundant existence in the atmosphere and necessarily in our bodies opens a wide field for speculation. How much is said and written about atmospheric conditions, about climate and its effects upon health and disease, and how little is really known! The great solubility of this gas, exceeding that of oxygen, means that in respiration it readily enters into the circulation. We have always known that there was a gas dissolved in the fluids of the body, believed to be nitrogen; we may reasonably expect that further analysis will show that argon is present in the fluids of the body to at least an equal amount with nitrogen. It is also possible that argon may form part of the number of organic compounds which have been supposed to be nitrogenous. Another interesting speculation is this: the property which has given nitrogen its enormous power in the production of explosives—that is, the tendency to escape from combination and assume the state of a gas—is still more marked in argon. Nitroglycerin is strong, but when we have "argoglycerin" what may we expect!

36 WEST THIRTY-FIFTH STREET.

CLINICAL REPORT ON NUCLEIN.

By CHARLES P. KNAPP, M.S., M.D.,
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Amygdalitis.—G. G., aged fifteen years, female—family have "uric-acid diathesis"—schoolgirl; resides in malarial district; previous attacks of follicular amygdalitis lasting from five to ten days. Taken violently sick, October 29, 1894, at 4 P. M., after feeling badly the previous day. Saw her about 5 P. M. She was in bed, moaning from a severe headache and pain throughout the whole voluntary muscular system. She is a fairly well-grown and nourished girl, with the hollow eyes and sallow complexion of those who have an "insufficient liver." Skin flushed, dry, and hot. Temperature, 103° F.; pulse, 120; respiration, 24. Breath had a fœtid odor. Tongue coated with a brownish fur. Tonsils swollen, so as to touch the uvula, and coated with a slight mucous discharge, which was easily brushed off, presenting a red and inflamed surface showing numerous small, pin-point crypts, with a slight white exudate in them.

A teaspoonful of Seidlitz salt was given in half a glass of water, and in an hour after a tablet of nuclein solution (Leedom-Aulde formula), to be repeated every hour for six hours, and then every two hours. At 11 A. M. next day, pulse, temperature, and respiration normal; patient free from all pain; bowels had moved about midnight, and she had slept fairly well after 3 A. M. Tonsils were reduced in size about one third, were not so red or painful, and the white pinhead points of the follicles, filled with secretion, were distinctly visible over their surface. Tablets were continued every three hours, and the patient was well the next day.

B. G., aged thirteen years, sister of the first patient. November 11, 1894, 10 A. M., case identical with above, save vomiting during first few hours. Treatment the same. Patient was able to return to school seventy hours after attack, well.

K. K., aged nine years, male. Does not differ in personal history, family, or symptoms from above. December 26, 1894, 2 P. M., one fifth of a grain of calomel every hour till the bowels moved. Nuclein tablet every two hours after bowels moved, which was four hours after I saw him. Well in seventy-two hours.

Malarial Disease.—M. Q., aged three years, female. Father is asthmatic; mother a plethoric woman, but never has had a milk supply for her children; had been brought up largely on condensed milk; has had catarrhal enteritis and asthma. Child anæmic, poorly nourished, and stomach very irritable. Taken sick on January 9, 1895, with chill and fever. At 11 A. M. child tossing about in bed, slightly delirious. Temperature, 104°; pulse, 130; respiration, 30; vomiting, and frequent desire to go to stool. Urine scanty and high-colored, with disagreeable odor. Stools normal. The desire to go to stool evidently comes from irritation of the bladder, which I frequently find in children after a malarial chill. One fifth of a grain of calomel was given every half hour till bowels moved, which was in three hours—a large, loose, and greenish passage; then nuclein tablets, one every two hours. Next day, temperature, pulse, and respiration normal, but patient very irritable, and refuses all food; half a teacupful of a solution of malted milk was given every three hours, and water freely as desired; nuclein continued same as before. Third day, slight chill and fever in the morning, but child able to be up in the afternoon; tablets continued as before. Fourth day, child able to be up; still cross and irritable and appetite poor. Malted milk and nuclein every three hours. No further return of fever or chills. The child continued to improve; other articles of diet that were suitable were gradually allowed, and nuclein given every three hours through the day till the end of the seventh day, when it was given three times a day for three weeks. The condition of this patient to-day is very satisfactory: from a fretful, puny, and poorly nourished child, she has gained in flesh, color, and digestive and assimilative power, to quote her mother, "upon candy medicine."

Mrs. M. D., aged thirty years, widow; good family history; a milliner by occupation. Has been sick with recurrent malaria for about three months, having an attack of chills and fever for two or three days every week or two, usually occurring about 11 A. M. or 4 P. M. of the day. Quinine and various preparations of iron had been taken during this time. Consulted me January 3, 1895, at my office, with general malaise following a two-days' attack of chill and fever. She is a well-nourished, slightly anæmic, sprightly woman, who showed upon a careful examination no special features of disease. Put her upon a pill of quinine, iron, strychnine, and aloes. Reported on January 14th as no better, the chills and fever having occurred twice since her last visit. Tablet of nuclein given her, two an hour before meals and at bedtime. Returned on January 30th for more tablets, having had no attack since taking them, and at present writing continues well.

Scarlatina.—L. W., aged eleven years, female; schoolgirl. Family history excellent; has never been sick; slight constipation at times. Taken ill October 30, 1894, early in the morning, with vomiting, fever, and mild delirium. Scarlatina in the neighborhood. At 7 P. M. countenance indicated delirium and mental condition rather incoherent while lying upon her back in bed; there was nervous tremor; very easily startled. She is a well-developed, well-nourished, and healthy looking child. Skin dry, hot, and dusky red. Temperature, 103·5°; pulse, 130; respiration, 30. Breath has a chloroform-like odor; tongue red and coated with a thick white coating; throat a dusky red, with slight mucous covering, and tonsils swollen and having the glazed and dusky appearance of scarlatinal sore throat. Glands at angle of jaw swollen and tender.

Examination of other organs revealed nothing of importance.

Calomel, a fifth of a grain, was given every hour till bowels moved, preceded by a warm bath. Bowels moved in about five hours. Tablets of nuclein were then given, one every hour. October 31st, 10 A. M., patient had passed a restless night, but was feeling much better at time of visit. Vomiting had stopped. Temperature, 100·5° F.; pulse, 96; respiration, 22. Slight efflorescence on back of neck and chest. Throat still very red and sore; tongue and fauces also very red. November 1, 11 A. M.: Patient feeling quite well and bright. Temperature, pulse, and respiration normal. Redness of back of neck and chest still to be seen. Throat much better, but still sore; mucous membrane of fauces and tongue not so red. Her condition was so much improved, I doubted my original diagnosis. Stopped nuclein and put patient on elix. gent. c. tinct. ferri chlor.; told her mother to send for me if patient did not progress well, and to keep her in the house and at home for two weeks.

Called again on November 5th on account of swelling of the glands of the neck. Superficial glands all enlarged and tender, especially those at the angle of the jaw; patient quite anæmic, with pain in joints, and without appetite. Urine dark-colored and scanty and containing a small quantity of albumin. These are the frequent sequelæ of scarlet fever.

I had stopped nuclein too soon; began giving a tablet every three hours, and Seidlitz salt to keep bowels soluble. In five days all these symptoms had disappeared. The patient was then put on syr. ferri iodid. (Squibb) in small doses and was soon well.

Tuberculous Adenitis (Cervical).—H. H., aged fourteen months, female. Family history of tuberculosis on both father's and mother's side. Had lost a child of five years with what I considered tuberculosis of the kidney. Child had had bronchopneumonia when seven months old. Had not been well for about a week; was very anæmic; glands about the neck were all enlarged, and the submaxillary glands were very large, red, and tender. She could not move her head, and was unable to nurse the breast. Saw her December 24th at 3 P. M.; was in bed and lying very quiet. Temperature, 100° F.; pulse, 120; respiration, 22. Tongue coated; bowels constipated; urine scanty and high-colored, but did not contain albumin; lungs and heart normal; spleen slightly enlarged; other organs normal.

Calomel, a fifth of a grain, was given every hour till bowels moved, which was at 10 P. M. A nuclein tablet was then given every two hours. December 25th, 10 A. M.: Condition not changed. Was called again at 7 P. M. Child had taken no nourishment during the day. Temperature was 103° F.; pulse, 130; respiration, 26. Phenacetine, half a grain, was given, and the same quantity at the expiration of an hour; then nuclein was given as before. December 26th: Child much better. Temperature, 100° F.; pulse, 120; respiration, 22. Neck still stiff and could not nurse the breast. Malted milk was given in solution, quantity of three ounces every three hours. December 27th: Pulse, temperature, and respiration normal; all glands were decreased in size, and by continuing nuclein every three hours the child was in fair condition, and the enlarged glands had disappeared by January 7, 1895.

Patient was then put on emuls. ol. morrhuæ. On January 14th mother called at my office for more tablets, saying the child was becoming peevish and fretful, and the glands were enlarging again. Saw her next day. Slight enlargement of glands, but no rise of temperature. Nuclein was given, a tablet every three hours, for remainder of the month. Child improved rapidly, and at present time is in better health than ever before. During the sickness she was weaned from the breast, and is now on a more generous but carefully regulated diet, the principal part of which is malted milk.

I am indebted to Dr. William H. Faulds, of Luzerne, Pa., for the following report:

Diphtheria.—Was called November 22, 1894, to see Miss M., who had contracted diphtheria while taking care of two diphtheria patients, both of whom died after a short illness. She was taken ill on the day previous, and when I saw her the tonsils were swollen, almost closing the throat, and the false membrane covering them extended at one point as far up as the soft palate. Having just received a sample bottle of nuclein solution, I determined to try it, and at once injected twenty drops, and repeated the dose every three hours until four injections had been given, after which the same quantity was administered twice daily for the following three days. The general condition of the patient was much improved after the first twenty-four hours, the countenance wore a more cheerful aspect, and there was a condition of well-being that I had never seen before under similar circumstances. On the second day the membranes began to melt away, not peeling off or shriveling and leaving a raw surface under them, as we usually see, and on the fifth day there was scarcely any membrane to be seen, and the tonsils presented an almost natural appearance. There were no sequelæ, save paralysis of the soft palate and a feeling of faintness on exertion. An examination, bacteriologically, of the exudate showed the Klebs-Löffler bacilli.

Since then I have treated two children, aged one and four years, with gratifying results. In the case of the one-year-old patient, it was the only one of a family of four that recovered, and the only one treated with nuclein in that family. Local applications and the usual remedies were given in these cases as well as nuclein.

NUCLEIN AS A DEFENSIVE PROTEID.

ITS SUBCUTANEOUS ADMINISTRATION IN THE DIFFERENT GRADES OF DIPHTHERIA,

ACCOMPANIED BY A CLINICAL REPORT OF FIFTY-THREE CASES.

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IN philosophy facts are useful only so far as they lead to a true theory; and a theory is only a method of showing the true relation which exists among the facts. When a theory is, or seems to be, well established, any facts which appear to militate against it are apt to be disputed or received with caution or incredulity. For this reason, mankind have been disposed to oppose new discoveries and innovations, which render a change necessary in their theories, creed-like opinions, and habits. It is not because they are unfriendly to improvements, but because they doubt the reality of the discovery or the real practical importance and utility of the proposed change. It rather demonstrates their love of truth, for they, like St. Paul, verily believe that they are doing their duty by resisting the introduction of error. But if the new truth can be made to harmonize with the old opinions, it is then cordially received into the family of admitted facts which go to constitute our favorite theories. The facts of a science may be compared to the scattered and broken bones of a skeleton, while a theory is the method by which they can be put together and proved to belong all of them to one animal. The facts in "cellular therapy," organo-therapy, or therapy of substitution, call to mind a collection of strange bones once found in England which apparently belonged to animals of a different kind from any that had ever been known to exist on earth. Some very learned and sagacious men at first denied the existence of the bones; but when they were dragged to light and produced before them, so that they could no longer avoid acknowledging their existence, they declared that such enormous limbs must have had a supernatural origin, and that they were undoubtedly the bones of fallen angels. Upon further examination by scientific men, it was found that they were bones of whales and other marine animals that had been ages ago "in the deep bosom of the ocean buried," and that the place had been afterward raised to eminence, like classic Delos, upon the shoulders of an ambitious and aspiring volcano. Only a few years have swept past us since a novel and peculiar tendency has made itself evident in medicine, more particularly in the application of certain remedies, which shows a tendency which can not fail to attract attention, and, from records which already fill the files, showing thereby the already achieved results, rouse our expectations. When I simply speak or make mention of the words myxœdema and thyreoid treatment, it will at once give the hint; generally speaking, it is the tendency to look for the cause of certain disorders to the demolished or deficient function of a certain organ or system of organs, and, when this cause has been sought out, to try to re-establish the *status quo* by introducing into the body the parenchyma or expressed juice of the corresponding organ of a healthy organism, usually that of an animal. By this mode of application we get a substitution or compensation of organic material, rightly termed "therapy of substitution" or organo-therapy.

From the very babyhood of the science of medicine, even at this period of civilization in some countries, human and animal secretions and organs have been used for the treatment of disease, certainly in a very crude and primitive manner; but all the same, the notion, however dim, must have been present in the human mind. Through the workmanship of such savants as Malpighi, Leeuwenhoek, Bichat, and Schwann, histology brought to light all the facts that all tissues have their birth in cells; pathology, through Müller and great Virchow, "cellular pathology"; bacteriology, through Lamarck, Ehrenberg, Royer, Davaine, Pasteur, and Koch, and physiological and pathological chemistry through Horbackzewski, Althouse, Lee, Vaughan, and Novy have all added to the proof that the entire science and art of medicine rest upon this pedestal—"The ultimate cell, its functions and enemies." If all that is true, then the advancement of therapeutics upon a rational basis must be linked inseparably with a more accurate knowledge of the life history of the cell.*

Dr. John Aulde, of Philadelphia, promulgates a most rational theory of cellular therapy. He speaks of it as a method in therapeutics of exhibiting properly selected medicaments with a view to the restoration of cell functions. It is in line with the conservative process of Nature treatment of diseased conditions. As cellular pathology is concerned in studying retrograde metamorphosis, so cellular therapy aims to apply scientifically those remedies which investigation and experience have shown to possess curative properties by restoring the cell to its normal function. This theory is not entirely a new one, as some of the older literature has pent up in it some of the views just expressed.

Speaking of the cell, we find it an ultimate living principle which is visible to the eye and understanding. It has functions of eating, sleeping, reproducing and defending itself, subject to the changes wrought by heredity and environment, and from the latest investigations we find in Professor Schaefer's remarks the following: "The protoplasm and nucleus form the living substance of the cell. There appears, however, to be yet another something which, although in point of size is of very insignificant dimensions, yet in point of function may perhaps be looked upon as transcending in importance, in some respects, both the protoplasm and nucleus, the *attractive particle.*" Quoting further from Martin Heidenheim: "The *attractive particle* is morphologically, physiologically, and chemically a structure *sui generis.* It is almost as minute an object as it is possible to conceive. It imitates and directs those processes which result in the multiplication of the cell, and indirectly, therefore, it is concerned in directing the general growth of the individual and ultimately the propagation of the species." Therefore, says Dr. Knapp, we can assume from the contribution that the cell has a brain and nervous system. Professor Sanderson also, before the British Association for the Advancement of Science, sounds another accord with the above views by saying: "The process of lymphatic absorption, which before we regarded as dependent on purely mechanical causes, is in a great measure due to the specific energy of cells and not to the various processes of secretion; the principal part is not, as we were inclined not many years ago to believe, attributable to liquid diffusion but to the same energy." Dr. Knapp further takes from this standpoint the view that for the present purpose, however, it is sufficient to know that the cell is the seat of all the functions of the human body—nutritive, secretory, excretory, and correlative—and that in health and disease we are concerned with the cell and not with the organism as a whole; that the vital processes take place in the cell and that the equilibrium between anabolism and katabolism, repair and waste, may be taken as a definition of health; that certain physiological functions of the cells—chemotaxis, phagocytosis, cell proliferation, and defensive proteids—are the functions concerned; immunity, vital resistance, and the arrest and cure of disease. It is already a known fact that certain cells or certain groups of cells have certain powers of reaction and irritability, and it is reasonable to suppose this power belongs to all cells. Stimulus and changes in the vicinity and environment of the cells produce alterations and changes in the cell; therefore it is concluded that the cell may be modified by medicaments, and assume this to be the basis of the physiological action of drugs, seeking not their mechanical effects, nor effects upon the pulse, respiration, and temperature alone, but their action upon the cell, whether the action is demonstrable in the laboratory or inferred from the clinical result.

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* Cellular Therapy, a paper by C. F. Knapp, M. Sc., M. D. *American Therapist*, November, 1894.

It does not fall to my lot in this paper to attempt to classify remedies according to their effects upon the cell and their power of restoring cell function. This classification has already been done by a most ably written communication read before the medical association by Dr. Knapp, of Luzerne County, Pennsylvania. The attention which I wish to draw is to one of those special medicaments that stimulate the defensive action of the cell. It is "nuclein." It is not only from this one which is embraced among the latest researches from which we shall reap the most practical result, but also from the many already listed, such as thyreoidin, antitoxine, séquardine, and toxines, with a host of others to follow, corresponding with each infectious disease and all characteristic lesions of each organ. This and other defensive proteids which we have to thank the physiological and pathological chemist for discovering (nuclein, proteids, and albuminoids), and from which such deductions have been made; that the power to resist or withstand disease rests in the defensive action of the cell, and that the rational treatment of disease of an infectious character is to stimulate this action, or to add the proteid, it is but plausible to say that from such therapeutics we are to secure immunity and cure in infectious diseases. With the aid of modern chemistry this onward march will continue and add newer substance from time to time analogous with the structure of well-known bodies. These substances will be submitted to the judgment of the medical world in the hope that they prove more useful than the preparations in present use.

Nuclein is not a new substance, and the study of nucleins dates back to the period of Bracinnot (1831). Only in recent times has there been any systematic attempt made to determine their chemical and physiological properties with a view to their employment as remedies. Among the students of nucleins rank such men as Quevenne, Schlossberger, Miecher, Béchamp, Hoppe-Seyler, Lubavin von Jaksch, and Ploez—these were the pioneers. Then came along in 1879 Kossell, who began to teach us the germicidal properties. Ten years elapsed before any attention was paid to these substances until again Altman revived their study. Lieberman prepared at this time an artificial nuclein from albumin and metaphosphoric acid. The men who are entitled to the latest honors in bringing about the most practical work in this line are Geohegan, Malfatti, Korbachzewski, and finally in 1893 Vaughan, of Ann Arbor, Althouse, of England, Germain Sée, of France, and Aulde, of Philadelphia.

Professor Vaughan has done much to introduce and experiment toward the preparation of a definite nuclein for therapeutic purposes. In a paper at the last Pan-American Congress, Professor Vaughan made the following statement regarding nucleins: "These substances — nucleins, proteids, and albuminoids—when introduced into the bodies of animals in certain amounts and under certain conditions have the property of stimulating the activity of certain organs in the animal, so that those organs produce and supply to the blood an antidote to the substances introduced; the glands that manufacture these immunizing agents are the spleen, thyreoid, and bone marrow, and the antidotal substance is a nuclein."

"Nuclein is a physiological remedy; it plays its daily rôle in the economy.* Wherever waste products are to be handled, there Nature supplies nuclein, and in that complex chemical and physiological workshop, the alimentary canal, the antiseptic properties of nuclein constitute the balance wheel of the digestive process. Besides its action upon the blood it has stimulant action upon the brain and nervous system, which accounts for its influence upon the aged and in chronic maladies. A wide field of usefulness is therefore open. Whatever assails the cell, it is useful *per se* as a neutralizer of the enemy and as a stimulator of defense. Whatever lowers the tone of the system, so that the correlation of forces is impaired and the defense broken down, it is useful to repair the breach by direct chemical action, or as a stimulant to normal work through the regular physiological processes."

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* Dr. Knapp's paper. *American Therapist*, November, 1894.

We can call nuclein a most prominent aspirant in the field which happily illustrates the doctrine of cellular therapy. Scientifically, nuclein is described as a phosphorized proteid, the phosphorus existing in the form of nucleinic acid combined with a rather complex basic substance. This basic substance yields, as decomposition products, one or more of the so-called xanthin bodies—adenin, guanin, sarkin, and xanthin. The available sources are as follows: Yeast cells, yolk of egg, the spleen, the blood, the testicles, the bone marrow, the brain substance, and the thyreoid and thymus glands.

The Preparation of Nuclein and its Source.—Yeast nuclein (Professor Vaughan's) is prepared by extracting brewer's yeast with diluted alkali and subsequent precipitation with dilute hydrochloric acid. The precipitate is redissolved with alkali and reprecipitated with acid several times, and is finally dissolved in 0·25 per cent. of potassium hydrate. As before said, nuclein is also made from animal sources, and is obtained by means of artificial digestion, after a preliminary maceration with a mixture of equal volumes of absolute alcohol and ether. The product is then usually digested for some days with pepsin and 0·2 per cent. hydrochloric acid, the undigested portion being collected upon a filter and worked, first with 0·2-per-cent. hydrochloric acid and then with alcohol. The final step consists in dissolving the precipitate in 0·5-per-cent. solution of potassium hydrate and filtering through a Chamberlain filter without pressure.

From all the foregoing glowing arguments presented to us by the above-cited gentlemen, all of eminence in either one branch of the science or the other, and whose veracity can not be doubted, either as regarding their word, power of observation, or ability, I concluded from some of my own experiences with nuclein to put this remedy to further clinical tests in the treatment of diphtheria and allied affections of the throat with different degrees of severity.

Of the fifty-two mixed cases herein reported, thirty-five were follicular amygdalitis, six pseudo-diphtheria, and nine true diphtheria. I take great pleasure in giving the results obtained by subcutaneous injections of this most important of defensive proteids, nuclein.*

I found that nuclein showed its specific effect upon all these varieties of diphtherias with a prompt action: the form known as angina lacunaris sive follicularis, a disease in which the surface of the tonsils and fauces is inflamed and is stippled with curdy-white or ash-gray points or patches; in which there is an absence of anything like a deep slough; which usually disappears under appropriate treatment and which may simultaneously affect a number in one family and prove fatal sometimes. It has been said by authorities, however, that this is not a true diphtheria to begin with, but that the affected parts in this condition serve as a good cultivating ground for the diphtheria bacillus, and that in this condition the patient is particularly susceptible, and that the diphtheria is really a secondary and superadded disease. We are reminded by Hamilton: "Many instances of diphtheria, however, commence as angina lacunaris." He further says that all forms with a marked condition are considered by him as of a diphtheritic nature. From the many suppositions by the most prominent bacteriologists, I find that the treatment herein advanced is indicated, both as a prophylactic and curative agent. Dr. Aulde, in discussing under the head of the physiological rôle of antitoxine inoculations, takes the following stand: "Having shown the utter fallacy of the claim that antitoxine inoculations are effective by reason of any chemical or physiological properties which they might possibly embody, it remains to give a rational explanation of their physiological rôle in the human economy. Recalling the fact that blood serum possesses antiseptic properties in its normal condition, and the additional fact that the blood serum of persons recovered from this disease is able to confer immunity on others who have been exposed, and further, that when the disease is in its incipiency inoculations with this peculiar toxalbumin will exert a favorable influence upon its course, we have some substantial data at hand as a basis for further investigation. All the evidence points to the probability that the introduction of this toxalbumin into the circulation has the effect of stimulating cellular activity, and that either by a gradual process or immediately the cells are educated to resist the destructive effects of the disease. It is a well-known fact now that the multinuclear white blood-corpuscles secrete or manufacture a powerful antiseptic substance called nuclein, which serves as a natural protection against diseases of every description. It is also admitted that through the presence of this substance in the blood, in the lymph, and in the various secretions, decomposition is prevented, particularly decomposition in the secretions of all mucous surfaces. Indeed, some have gone so far in this direction as to assert that the mucus secreted by nasal mucous membranes is itself an active antiseptic. It is not unreasonable to assume in this study that when a person is attacked with diphtheria these cells gradually acquire the ability to secrete a product which is inimical to the bacterial products taken into the circulation during the progress of the disease; hence the great value of blood serum obtained from one of this class. By the use of pure cultures from the disease we introduce into the circulation an irritant which has the effect of stimulating the functional activity of the white blood-corpuscles to produce something which shall counteract the effect of the poison; this substance in solution coming in contact with the cells at the point of elimination augments the normal antiseptic properties of the secretions; moreover, it supplies an excellent illustration of the theory promulgated under the name of cellular therapy."

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* In this connection I should say that the nuclein employed in the following cases was manufactured by Parke, Davis, & Co. after the formula and under the supervision of Professor Vaughan, with the exception of the four cases reported in the *American Therapist.*

In diphtheria of this type fifteen to twenty minims of nuclein hypodermically administered twice in one day, dividing the injection twelve hours apart, gave a most remarkable result within twenty hours in every case. No other remedy was employed, excepting salt-water gargling or douching, simply to remove the loose *débris* lying about the mouth and throat. In but a small percentage of the cases the temperature mounts after the first injection from 0·1° to 3° F.; but the high-temperature rise was an exception. The pulse runs from 100 to 160. All symptoms usually found present in this form leave the patient within the first twenty-four hours. Some fever remains for thirty-five hours, then disappearing, minus the exhausted condition. Nuclein seems to possess with all its specific action another advantage—that of a dynamogenetic power, increasing the vigor of the central nervous system.

In that type known to us as pseudo-diphtheria the same promptness of action was immediately noticeable, with that one exception that a longer time (three to four days) was wanted for a complete recovery. In these patients the injections were made also in divided periods of time, but oftener exhibited (every eight hours), each consisting of twenty minims, and continued for three days. In addition, the gargling or irrigation of salt water every hour is practiced, the entire number of eight patients recovering within four days.* Nine true diphtheritic cases were treated upon this plan of medication, and seven of them recovered, one of them undergoing tubage for stenosis, a remarkable percentage. The cases of the first four of these patients were reported in full in the *American Therapist*, November, 1894, all of whom recovered. Since that three other patients have received injections, and all have died from toxæmia and heart paralysis. The first two patients were not injected until the third day of the disease, which ran a most rapid course.

That no mistake in diagnosis should be made in all these cases regarding the specific character of the disease and not confounding it with some similar form, the membranes taken from these patients were all subjected to a critical bacteriological test.

The seventh of the recovered cases is one which came under the treatment since the above-published report appeared. The patient was seen in consultation with Dr. L. Sandberg, of New York. The injection was not made until the fifth day of the disease, and on the sixth day stenosis was so marked that tubage had to be performed. The injections of ten minims were administered subcutaneously four times daily for the first day and thereafter three injections for seventy-eight hours. No extension of membranes took place, but they were observed to detach themselves after the first forty hours. This effect of the membranes dissolving and detaching from the parts is most marked under this treatment. I have observed them disappear in from forty to fifty hours—sometimes a little later. In this last case they continued to form for nine days.

The Method of using Nuclein.—The earlier in the disease nuclein is administered the better. As soon as a patient shows any signs of either of the different forms of diphtheria he should receive an injection of twenty minims of nuclein under the skin of the flank or gluteal region in the child; in men, in the muscles of the back of the neck; and in women, in the upper part of the chest, or as the operator chooses the point of entrance. When the injection is well done in the subcutaneous tissue it is not painful, though some numbness is experienced; these feelings have no significance. The pain produced by the injection becomes less at each repetition. The pain is less when the needle is thrust deep into the muscular rather than the subcutaneous tissue. Nuclein is absorbed in a few moments. In no case is there found to be any local reaction if antisepsis has been carried out. If the bacteriological examination shows that we are dealing with a case of pseudo-diphtheria or follicular amygdalitis, or the like, only three injections are necessary, of fifteen to twenty minims each, in children up to the age of twelve years; over that, twenty-five to thirty minims, at three equal periods of time. These inoculations will not give rise to the slightest ill effect, but will improve the condition within thirty-five hours, dissolving away the membranes and exudations present, and buoy the patient up as if some powerful stimulating tonic was given.

In true diphtheria the injections must be administered for three successive days in doses of twenty-five minims every four hours.

I can only say that from what experience I have had with the administration of nuclein it has proved itself to be a stanch medicament, and will undoubtedly prove a most valuable adjunct to organo-therapy. Those who will give it an unbiased trial can not fail to be in accord with my clinical findings.

No. 460 Lexington Avenue.

The St. Louis Sanitarium for Throat and Lung Diseases.—A formal opening and christening of this institution was held on the afternoon of Thursday, the 4th inst., by a delegation from the Tri-States Medical Society of Iowa, Illinois, and Missouri, then in session in St. Louis. Addresses were made by Dr. I. N. Love, of St. Louis; Dr. Karl von Ruck, of Asheville, N. C.; Dr. J. R. Lemen, Dr. G. W. Cale, Mr. E. J. Milliken, and Dr. Emory Lanphear, of St. Louis; and Dr. H. C. Eschbach, of Albia, Iowa. Dr. Paul Paquin, who has for a long time been making experiments in the treatment of pulmonary tuberculosis by means of the serum therapy, and who has opened the sanitarium, explained its objects and his proposed methods of treatment.

Changes of Address.—Dr. M. D. Lederman, to No. 128 East Sixtieth Street, New York; Dr. H. Davison Schwarzschild, to No. 46 West Thirty-fifth Street, New York.

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* Two of these patients were seen in consultation with Dr. Pfeiffer, one belonging to Dr. Hatch and the other to Dr. L. Sandberg. I am also indebted to Dr. Jacobson, visiting surgeon to Demilt Dispensary, children's department, for sending me ten cases for injection which were watched by himself.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

Published by
D. APPLETON & CO.

Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, APRIL 13, 1895.

THE SERUM TREATMENT OF DIPHTHERIA.

WE all remember the decided impression made on us not long ago when Husemann, of Berlin, raised his voice against the view that the Klebs-Loeffler bacillus was pathognomonic of diphtheria and against the idea that the antitoxic-serum treatment was curative of true diphtheria. What he said came like a thunderbolt to disturb the serene progress of the treatment toward coming into vogue. He spoke with *quasi* authority, and men paused to reflect, to go over the ground again, to reopen the case, which had been looked upon as almost as good as closed. If this was the effect of Husemann's criticism, made from a theorist's point of view, what weight may we not look to see accorded to the radical protest made before the New York Academy of Medicine last week by Dr. Winters, resting on his own painstaking and protracted clinical observation in the Willard Parker Hospital and elsewhere? Nobody who knows the medical profession of New York can question Dr. Winters's astuteness as a clinician, and we do not conceive it to be possible to bring up any circumstance or condition that may reasonably be held to have tended to warp his judgment in this matter. We shall not summarize his conclusions here; the substance of what he said, nearly in his own words, will be found in the report of the proceedings given in this issue of the *Journal.* Opinions will vary, of course, as to whether or not one holding Dr. Winters's convictions may properly go so far as he went in condemning the methods of conducting the antitoxine treatment adopted in New York under the auspices of the local board of health. We do not interpret what he said in that direction as condemnatory either of the board of health as a body or of individuals acting under the board's authority. On that score the case is simply this: Some men are firmly convinced of the great promise held out by the serum treatment, if not of its efficacy having been sufficiently demonstrated, and they are bound in conscience to act accordingly; others with quite as positive convictions to the contrary are equally under a conscientious obligation to protest. The warmer the discussion grows, the sooner are the questions involved likely to be answered to the satisfaction of the profession at large, provided side issues are not clothed with undue importance. Until Dr. Winters presented his observations it seemed to most of us that the antitoxine treatment was destined to meet speedily with general acceptance, coupled with the drawback that an occasional death attributable to it must be expected. Now, however, we appear to be far from such a conclusion. Much more experience, much more sifting of facts must yet be gone through with before the full truth will be known.

There is one point that seems worthy of more attention than it has thus far met with. It was mentioned by Dr. Winters, but is more fully treated of in Dr. Armstrong's letter printed elsewhere in this issue. We mean the destructive effects of an animal's serum when thrown into the circulation of another of a different species. Doubtless the conditions ordinarily attending the use of the horse's serum therapeutically differ materially from those present in Hayem's and others' experiments alluded to by Dr. Armstrong, but it strikes us as reasonable to suppose that exceptionally they may be near enough alike to account for a death now and then as the result of this way of treating diphtheria.

MEDICAL AFFAIRS IN INDIA.

THERE appears to be deep discontent among our professional brethren in India. Whether it is confined to the non-official physicians of British birth domiciled in that country, or whether it extends to the native practitioners, we do not know, but there seems room for surmise that it affects all but those who are in the military service. Some of the Indian medical journals have lately printed editorials and communications bearing now on one aspect of the grievances complained of and now on another, but we have not yet noticed any connected statement of the whole state of the case. There is what is known as the "covenanted medical service," and there is the body called the "uncovenanted medical service." Precisely what the difference is between these two bodies we have not yet divined, but we presume that the one is more favored in government circles, more "official," than the other.

If we may judge by an editorial article that appeared in the March number of the *Medical Reporter*, of Calcutta, the hope and expectation had been entertained that the Indian Medical Congress, which assembled in Calcutta in December, would furnish an opportunity for those Indian physicians who were not connected with the official medical service to show forth to the world something of what they had achieved under difficulties, as a consequence of which the government would perhaps be induced to enlarge their facilities. In this they were disappointed. The president of the congress, whom they seem to have looked to as their spokesman, is said to have "put his foot into it," to have given a political turn to the congress, and to have played into the hands of the official class. It is hinted that in all this he had the powerful co-operation of Mr. Ernest Hart. Among other things, it is said that the heightened educational facilities that should have been asked for in behalf of the provincial schools were advocated chiefly if not solely for the benefit of the officers of the medical service, men who are only temporary residents of India, and that, too, not at the expense of the home government, but by laying a new tax on the people of India—a tax on salt—that they are declared to be utterly unable to pay. Why, indeed, they should pay it it is difficult to understand, but we can make no pretense of knowing the facts and appreciating their bearing well enough to warrant us in doing more than assuring our Indian brethren of our sincere sympathy and of our hope that their just aspirations may meet with full fruition. Let them not be discouraged.

MINOR PARAGRAPHS.

DEGREES IN PHARMACY.

In the April number of the *Pharmaceutische Rundschau*, a German pharmaceutical journal published in New York, there is an English editorial article on pharmaceutical degrees. While the writer chivalrously and justly insists that pharmacy is something more than an art, and consequently that its practitioners are as a body entitled to be looked upon as a profession, yet he modestly maintains that the pharmaceutical curriculum is not sufficiently scholastic to attach to the degree of doctor of pharmacy a dignity that the medical schools would think commensurate with its lofty designation. In this we think he is correct.

OBJECTIONS TO THE ANTITOXINE TREATMENT OF DIPHTHERIA.

Fürst states in the *Berliner Klinik* for March that the drawbacks to the use of antitoxine are its uselessness in secondary septic infections and in diphtheria of the bronchi, and the unfortunate after-effects, such as purpura, albuminuria, hæmorrhagic nephritis, arthritis, and other phenomena of systemic intoxication that are sometimes manifested from the eighth to the fourteenth day after the injection.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 9, 1895:

DISEASES.	Week ending Apr. 2.		Week ending Apr. 9.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	5	2	5	1
Scarlet fever	114	16	119	21
Cerebro-spinal meningitis	3	2	1	2
Measles	143	9	208	15
Diphtheria	225	40	237	43
Small-pox	0	0	4	0
Tuberculosis	259	107	193	111

The Late Dr. Alfred L. Loomis.—At a stated meeting of the New York Academy of Medicine held on Thursday evening, April 4, 1895, the following resolutions were passed:

Whereas, Our associate and former president, Alfred L. Loomis, M. D., LL. D., has been removed from among us by death. Therefore be it

Resolved, That in the death of this distinguished man the profession of medicine has lost one of its ablest teachers, one of its wisest leaders, and that the Academy of Medicine has lost a fellow who contributed largely to its present prosperity; for, at a time when it had become important that a new site should be secured, it was greatly through the courage and enterprise of Dr. Loomis that this was accomplished and the present large and sufficient building erected.

Resolved, That in view of the position occupied by Dr. Loomis in relation to this academy it is recommended that a memorial meeting be held in the hall of the academy on the first Thursday in May, and that the president be requested to invite representative speakers, and take such further action as he may deem appropriate.

Resolved, That a copy of these resolutions be sent to the family of Dr. Loomis, and that they be published in the secular and medical press.

William M. Polk, *Chairman*,
[Signed.] Francis Delafield, } *Committee.*
Andrew H. Smith.

The Brooklyn Death from Diphtheria Antitoxine.—Dr. Rosa Engelmann, of Chicago, writes to us that she has used with decidedly good results serum from the same lot that included the specimen to which Miss Valentine's death has been attributed.

The Association of the Alumni of the New York Hospital will have its annual dinner at the University Club on Friday evening, the 26th inst.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending March 30, 1895:*

Baldwin, L. B., Surgeon. Detached from the Pensacola Navy Yard and ordered to the U. S. Steamer Montgomery.

Hope, J. S., Assistant Surgeon. Ordered to the U. S. Steamer Montgomery.

Wells, Howard, Surgeon. Detached from the U. S. Steamer Montgomery and granted three months' leave of absence.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending March 30, 1895:*

Vaughan, G. T., Passed Assistant Surgeon. To proceed to Philadelphia, Pa., and assume command of service. March 28, 1895.

Gardner, C. H., Assistant Surgeon. Granted leave of absence for fifteen days. March 22, 1895.

Cumming, H. S., Assistant Surgeon. To rejoin station, New York, N. Y. March 16, 1895.

Promotion.

Eager, J. M., commissioned as passed assistant surgeon. March 26, 1895.

Society Meetings for the Coming Week:

Monday, *April 15th:* New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Clevland, Ohio, Society of the Medical Sciences; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *April 16th:* Medical Association of the State of Alabama (first day—Mobile); Medical Society of the State of California (first day—San Francisco); Florida Medical Association (first day—Gainesville); New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Society of the County of Kings, N. Y.; Baltimore Academy of Medicine; Passaic, N. J., County Medical Society (annual).

Wednesday, *April 17th:* Iowa State Medical Society (first day—Creston); Medical Association of Georgia (first day—Savannah); Medical Association of the State of Alabama (second day); Medical Society of the State of California (second day); Florida Medical Association (second day); Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society; Windham, Conn., County Medical Society (annual—Plainfield); Middlesex, Mass., South District Medical Society (annual—Waltham).

Thursday, *April 18th:* Iowa State Medical Society (second day); Medical Association of Georgia (second day); Medical Association of the State of Alabama (third day); Medical Society of the State of California (third day); New York Academy of Medicine; Brooklyn Surgical Society; Tolland, Conn., County Medical Society (annual); New Bedford, Mass., Society for Medical Improvement (private).

Friday, *April 19th:* Iowa State Medical Society (third day); Medical Association of Georgia (third day); Medical Association of the State of Alabama (fourth day); New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *April 20th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Births, Marriages, and Deaths.

Married.

Murtland—Alexander.—In New York, on Thursday, April 4th, Dr. Samuel Murtland and Miss Anna Alexander.

Peterson—Rotan.—In Waco, Texas, on Wednesday, April 3d, Dr. Frederick Peterson, of New York, and Miss Antoinette Rotan.

Seldon—Thwing.—In Brooklyn, on Tuesday, April 9th, Dr. Charles Seldon and Miss Gertrude Thwing.

Died.

Barss.—In Malden, Mass., on Saturday, March 30th, Annie, wife of Dr. J. Richmond Barss.

Coles.—In Philadelphia, on Saturday, April 6th, Dr. John W. Coles, of the navy, aged fifty-five years.

Hawes.—In Noroton Heights, Conn., on Sunday, April 7th, Dr. Arnold C. Hawes, aged eighty-one years.

McKim.—In Paris, France, on Sunday, March 31st, Rogée Coolidge, wife of Dr. W. D. McKim, of New York.

Sauvé.—In New Orleans, on Saturday, March 30th, Dr. Henry P. Sauvé, in his sixty-second year.

Letters to the Editor.

A WARNING.

42 West 36th Street, New York, *April 11, 1895.*

To the Editor of the New York Medical Journal:

Sir: I wish to call attention to a clever scoundrel who is collecting subscriptions for himself and family on the supposed recommendation of Dr. Howard A. Kelly, of Baltimore. The letter which he presents is a forgery, as Dr. Kelly informs me by telegraph to day. Appended to the letter are several subscriptions from prominent members of the profession in this city. His story is that he left Birmingham, England, three years ago and settled in Baltimore to practice abdominal surgery there. He claims to be an intimate friend of Lawson Tait, with whom he says he is in frequent correspondence; in fact, had a letter from him only a few days ago, in which Tait advises him to return to England, and promises him work again in Birmingham. He had failed to obtain the success in Baltimore that he had good reason to expect, and now asks for a little help to enable him to return to England. Dr. Kelly's forged letter recommends him warmly as worthy of assistance. When I asked him if it had not occurred to him that coming from England to practice abdominal surgery in this country was very much like carrying coals to Newcastle, he modestly replied that I was quite right; he had made a mistake, and had been misled by American medical tourists, who had given him glowing accounts of the success of abdominal surgeons in this country. The man was shabbily dressed, redolent of whisky and tobacco, and was evidently a medical tramp on a rapid descent to Avernus. If any one of your readers to whom he presents his forged letter will retain possession of it, send for a policeman at once, and then notify me, Dr. Kelly and I will see that he gets his punishment.

A. Brayton Ball, M. D.

OBJECTIONS TO THE ANTITOXINE TREATMENT OF DIPHTHERIA.

New York, *April 10, 1895.*

To the Editor of the New York Medical Journal:

Sir: Those that heard Dr. Winters's very comprehensive criticism of the value of antitoxine serum in diphtheria, at the meeting of the Academy of Medicine on the 4th inst., can not but feel that an important factor has been overlooked in the consideration of the treatment of diphtheria with this substance; and that factor is the globulicidal power of alien serum on the blood of an animal into which it is injected.

In a monograph on *Transfusion of the Blood*, published in 1875, L. Landois reported that the serum of the dog, the horse, or the rabbit dissolved the red globules of other animals with great rapidity; and in the last edition of Professor Stirling's translation of Landois's *Physiology* there is the statement that, if the serum of one animal is transfused into an animal of another species, the blood-corpuscles of the recipient are dissolved, and if there is a general dissolution of the corpuscles death may occur.

Dr. G. Daremberg (*Archives de méd. exp.*, 1892) stated that his experiments showed that, while the serum of an animal of one species did not destroy the red corpuscles of an animal of the same species, it rapidly destroyed the corpuscles of an animal of another species. If warmed to from 122° to 140° F., or exposed to the light for several days, the serum lost this globulicidal power.

G. Hayem, in his monograph on *The Blood*, states that the serum of the ox more or less profoundly changes the blood of the dog, producing in it small emboli that may involve the functions of organs or even life itself. Microscopically, these emboli consist of degenerated elements of the blood, the hæmatoblasts and the red and white corpuscles being altered by the serum. He specifically states that horse's serum produces phenomena similar to those caused by ox's serum. He further states that the urine is habitually suppressed and the kidneys are congested.

The tendency of alien serum to produce emboli has also been noted by C. Lazet (*La France méd.*, 1891), who found that if the serum of a dog was mixed with the blood of a man, or *vice versa*, there were produced more or less pronounced alterations, and solid concretions were formed from the metamorphosed elements.

The undersigned believes that it was this tendency of alien serum to form emboli that caused the death of the seventeen-year-old girl in Brooklyn. And this toxic influence of serum *per se* explains all the unusual and untoward phenomena that have been reported in diphtheria patients treated by antitoxine serum. The post-mortem lesions found in the five-year-old child whose clinical history is reported in the *British Medical*

Journal for March 30th correspond throughout with those observed by Hayem in dogs that died from the effects of alien-serum injections, though the animals were given forty times as much serum as the human being.

Empiricism that has bacteriology as its sole foundation is as condemnable as any other form of that cult, and, as prognosis is not yet a lost art, it seems absurd that the medical profession should accept the dictum that all persons whose nasal or faucial secretions contain the Klebs-Loeffler bacilli should be injected with antitoxine serum. There are many recorded instances in which the bacilli have been found in the secretions of healthy individuals, and there are some recorded instances in which these bacilli have not been found in patients who clinically presented the phenomena of the disease, even to the secondary paralysis.

While antitoxine serum has probably a field of usefulness, it is evident that nice discrimination is necessary to designate wherein it lies. SAMUEL TREAT ARMSTRONG, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of April 3, 1895.

The President, Dr. JOSEPH D. BRYANT, in the Chair.

Experiences in the Production and Use of Diphtheria Antitoxine.—Dr. HERMANN M. BIGGS read a paper with this title. He divided the cases treated into two classes—those treated in the Willard Parker Hospital and those treated by the health board physicians in the tenements. The latter series included 255 cases with 40 deaths, a mortality of 15·69 per cent. Of these, 50 had been mild, 96 severe, 42 severe and septic, and the rest of moderate severity. The notes of 252 cases showed that the larynx alone had been involved in 21, and the pharynx or tonsils or both in 116. The pharynx or nares or both had been involved in 57, the larynx or pharynx in 41, and the larynx, pharynx, and nares in 17. Of the 40 deaths, 15 had occurred within twelve hours after the first injection; therefore, excluding these, the mortality had been reduced to 10·4 per cent. All the patients that had died, with one exception, had had laryngeal diphtheria. In 197 cases the antitoxine treatment had been begun before the fifth day, and in these the mortality had been 7·79 per cent. The series of hospital cases, on account of their great severity, and their coming under observation late in the disease, had not yielded such good results. There had been 129 of these cases, of which 83 had been nasal or pharyngeal or both, and 46 laryngeal. In the whole series there had been 31 deaths, or a little over twenty-four per cent. In 1894, during the same season of the year, the mortality in the hospital among 146 similar cases treated without antitoxine had been thirty-two per cent. Excluding 5 of the laryngeal cases treated on the fifth day or later, there had been 19 intubation cases, with 9 deaths. In 1894 there had been 16 intubation cases, with 13 deaths. Out of the 20 patients with laryngeal diphtheria treated with the serum, but not intubated, 6 had died. In a series of 82 cases treated by Dr. Walter F. Benzl, there had been 70 recoveries and 12 deaths, a mortality of fifteen per cent. In 16 of these cases no benefit had been observed from the antitoxine treatment, and in 6 the improvement had been slow in manifesting itself. Thirty-three of the patients had shown no after-effects, but in a considerable proportion an eruption of urticaria had developed in from three to ten days after the injection of the serum. In one case this eruption had been accompanied by intolerable itching and followed by painful swelling of the larger joints and loss of power in many of the muscles. There had usually been a trace of albumin in the urine during these complications. In the fatal cases, no new anatomical lesions had been observed, and there had been no evidence in any case that the antitoxine had produced or hastened the fatal termination. Nearly all the patients had been treated with the serum produced under the direction of the Health Department.

The author said that all that the diphtheria antitoxine could be expected to do was to act as a specific against diphtheria toxæmia; it was unreasonable to expect it to restore heart fibers or renal cells that had already undergone degeneration or to ward off impending asphyxiation due to laryngeal stenosis. The earlier it was administered, the better the results. Its value was best attested by the fact that the mortality among patients treated through the city without antitoxine had been between twenty-five and thirty-five per cent. at the same time that those under the antitoxine treatment had exhibited only a mortality of eight or ten per cent.

The Technique of the Production of Diphtheria Antitoxine.—Dr. W. H. PARK read a paper on this subject. He said that it was necessary to have very virulent diphtheria bacilli if one desired to obtain the toxine. Experiments had been made in the laboratory to increase the virulence of the bacilli by passing them through guinea-pigs, but the result of this process had not been very striking. It had been found that the bacilli would grow sufficiently well in ordinary flasks plugged with cotton, but that from two to four weeks were required for the production of the toxine. The strength of a given sample of toxine and the existence of any contamination were determined by experimental cultures made from time to time.

Great care was taken to select horses free from glanders. If the horse reacted well to the first injection of toxine, this was not repeated until the fever and swelling had subsided. After a period of from two to four months a horse was capable of receiving at a single dose one hundred cubic centimetres of strong toxine without exhibiting any marked reaction. There was a great difference in the quantity of toxine furnished by different horses. The blood was obtained by thrusting a glass cannula into the jugular vein, and it was then conducted through rubber tubing into a sterile flask the mouth of which was carefully protected by sterilized cotton. When the red corpuscles had settled, the clear serum could be decanted readily. After several months the animals became as susceptible to the injection as at first.

Experiences in the Use of Diphtheria Antitoxine for Immunization.—Dr. C. H. PECK read a paper embodying the results of his observations at the New York Infant Asylum on the use of the serum to confer immunity. He said that there had been a hundred and thirty-six cases of diphtheria since September 5, 1894, and that attempts to check the epidemic by quarantine measures had proved unavailing. On December 12th forty-two children had been separated from the others, and the antitoxine given to half of this number. No case of diphtheria had developed among them for a month. On January 16th and 17th two hundred and twenty-four children had been inoculated with Behring's antitoxine No. 2, and no case of diphtheria had appeared among these children until February 3d. On February 27th and 28th, two hundred and forty-five children had been inoculated with the board of health's serum, and this had been followed by immunity for a little over a month.

The Results of Autopsies on Persons Dying after Treatment with Diphtheria Antitoxine.—In a paper thus entitled

Dr. George P. Biggs said he had made eighteen such autopsies at the Willard Parker Hospital. The diphtheritic membrane had usually been found quite thin and loosely attached. Parenchymatous and fatty degeneration of the heart, liver, and kidneys had been very noticeable in most of the cases, and, as it had appeared to be more advanced the later the patients had come under treatment, it would seem that the antitoxine exercised a marked controlling influence over such degenerations. False membrane had been found in the small bronchi in only one case. There had been acute fibrinous pleuritis in two of the cases. The spleen had usually been found congested, but not specially enlarged. There had been many cases of extensive broncho-pneumonia.

The Anatomical Lesions found in Animals which have Died during the Process of Immunization.—Dr. Ira Van Gieson read a paper with this title. Taking one of the cases as a type of all, he said that the heart had appeared on gross examination to be normal; the right lung had contained a thrombus; the abdominal cavity and peritonæum had been normal; the spleen had been softened and congested; the liver and pancreas had been normal; the cortices of the kidneys had been streaked with yellowish-white bands. The lymph nodes had been diseased in all the animals. A most minute examination had been made of the tissues of this animal, with the result of showing the central nervous system normal; the heart muscle very fatty; thrombi of the usual structure in the pulmonary veins; the spleen converted into a mass of blood cells and pigment; the liver excessively active; the lymph nodules enormously enlarged; and the kidneys showing acute degeneration. From this investigation he was disposed to think that antitoxine was largely a secretion of the liver cells.

The discussion of these papers was opened by Dr. Joseph E. Winters, who said that some months before he had shared with his colleagues the hope that a specific against the toxines of the diphtheria bacillus had been discovered, but three months of daily observation in the Willard Parker Hospital had been a sad—an extremely sad—disappointment to him, and he regretted to say that, as a result of that experience, he was now present to speak in opposition to the antitoxine treatment of diphtheria. His remarks would be based entirely on three months' daily clinical observation of the effects of the antitoxine in a hundred and fifty-four cases of diphtheria treated in the Willard Parker Hospital. In the first paper of the evening reference had been made to the effects of the antitoxine on the false membrane of diphtheria. What Dr. Winters had to say with reference to this might be best illustrated by referring to four patients that had recently been admitted into the Willard Parker Hospital in the course of one day, as follows:

Case I.—There had been a few patches of false membrane in various portions of the throat, showing that the exudate had already exfoliated, only small portions of it remaining.

Case II.—There had been false membrane on both tonsils, which was thick at the edges, and exfoliation had already begun, the membrane being in some places detached from the mucous membrane an eighth of an inch.

Case III.—The patient had been in the early stage of the disease process. The false membrane had been thin at the edges, involving the tonsils and slightly the pillars of the fauces. At one point there had been inflammation at the edge of the false membrane.

Case IV.—This had been a septic case, with an abundance of membrane on the tonsils and the pillars of the fauces and some on the posterior wall of the pharynx.

In Case I, where detachment of the membrane had been nearly complete before the patient was brought to the hospital, the throat had cleared rapidly. In Case II, the exfoliation, which had begun at the time of the patient's admission, had continued, but some membrane had remained on the pillars of the fauces and on the tonsils ten days after admission. In Case III the patient had been free from membrane for the first time on the tenth day after admission. In Case IV, the septic case, the patient had lived three days. During this time, though the patient had been thoroughly under the influence of antitoxine treatment, the antitoxine had never made the slightest impression on the symptoms of toxæmia. These four cases may be taken as a sample of what the speaker had seen repeatedly at the Willard Parker Hospital during the three months of antitoxine treatment of diphtheria. In not a single case had there been the least evidence that the formation of the false membrane had been checked, that its exfoliation had been hastened, or that the throat had been free from membrane earlier than in cases not treated with antitoxine. In not a single septic case had the antitoxine made the least impression on the symptoms. The toxæmia had not in one instance been relieved or lessened. There had been no indication in the character or frequency of the pulse or in the general condition of the patient that a specific for the toxæmia had been administered.

Reference had next been made in Dr. Biggs's paper to the laryngeal cases of diphtheria, and the speaker would like to ask the author and those who were supporters of the antitoxine treatment why it was that antitoxine should be administered for the relief of the laryngeal stenosis due to a diphtheritic false membrane. While the diphtheritic process remained confined to the laryngeal mucous membrane there was no toxæmia. There was, therefore, no indication for the exhibition of an antitoxine. It had been stated in the paper that the death-rate in the laryngeal cases under the antitoxine treatment had been lower than under the methods of treatment in vogue before the use of antitoxine, but Dr. Biggs had compared results observed a year before with the results during the past three months. He had neglected to state that at the Willard Parker Hospital, in the month of December last, there had been eight consecutive recoveries after intubation in cases of laryngeal diphtheria without the use of antitoxine. During the same month at the Foundling Asylum in this city, out of fourteen cases of intubation for laryngeal diphtheria, there had been twelve recoveries without antitoxine. At the Willard Parker Hospital, in the month of December, 1894, the recoveries from laryngeal diphtheria without antitoxine had been about seventy-five per cent. This had never been equaled with the antitoxine treatment with or without intubation.

The paper had dealt largely with statistics. The speaker wondered if the members present had noticed that the author had treated the matter of statistics largely by elimination and exclusion. In comparing the results of antitoxine treatment with the former methods of treatment, in the antitoxine cases he had excluded numerous deaths for one reason or another, while in speaking of the results before the antitoxine treatment no deaths had been eliminated. The facts were that during the first three months of 1894 the death-rate at the Willard Parker Hospital, without antitoxine, had been thirty-two per cent. During the first three months of 1895, with antitoxine treatment, the death-rate had been twenty-eight per cent.; but in order to make it clear that this mortality rate did not represent the exact state of things as it should, the speaker would ask his hearers to consider for a few moments the class of cases which had been brought into the Willard Parker Hospital for antitoxine treatment during the past three months. In many of these cases there had been no clinical evidence of diphtheria. They had been cases of diphtheria from the bacteriological standpoint only. Examination of the nose and throat, examination of the constitutional condition of the patient, had revealed no evidence of diphtheria. The patient had had in the throat the Klebs-Loeffler bacillus, but the presence of this bacillus in the throat or in the nose, in the absence of any lesion, was not evidence of the existence of diphtheria.

In passing, he would ask again, Why was antitoxine given in cases which were diphtheria from a bacteriological standpoint only? It had been proved the world over that antitoxine had no influence on the diphtheria bacillus, it persisted just as long when antitoxine was used as it did when it was not used.

During the first three months of 1894 no case of diphtheria had been seen in the Willard Parker Hospital that had not shown abundant clinical evidence, as well as bacteriological evidence, of diphtheria. These cases of so-called "diphtheria" without any of the clinical manifestations of the disease should have been eliminated from the statistical report, and there had been a score or more of such cases during the past three months. Had these cases been eliminated from the list, the death-rate under antitoxine treatment during January, February, and March would be much higher than it had been during the corresponding months of 1894, and this too, at a time when diphtheria was far milder than it had been a year before. Some of the patients brought into the hospital in February, and many of those admitted in March, were still very ill and would surely die. Were these included, the mortality during the antitoxine treatment would be startlingly high.

The author of the paper, like all others who had written in favor of the antitoxine treatment of diphtheria, had insisted upon early treatment as a *sine qua non* for the best results, but the record from which Dr. Biggs had prepared his paper would show that the first two patients on the list who had recovered had had their first injection of antitoxine on the eighth and sixth days respectively.

In the next seven cases on the list, the first injection had been given on the fourth day in two cases, on the fifth day in two cases, on the third day in two cases, on the sixth day in one case, and all the patients had died. In Case XXIV on the list, the patient had had the first injection on the ninth day; and had recovered. In one case, with the first injection on the second day, the patient had died. One patient, who had had his first injection on the tenth day, had got well, and one who had had it on the third day had died; and so on throughout the list. It was not the date of the first injection that determined the result, but it was the individual character of the case and the nature of the disease. At the Willard Parker Hospital, in any case which at the time of admission had given evidence that the disease was progressive in its course, that course had not been stayed or changed in any particular by the antitoxine treatment.

It had also been stated that the serum used in the early part of the antitoxine treatment at the Willard Parker Hospital had been so weak that little could be expected from it. A careful study of the record would show that the patients treated with the weaker serum had done better than those treated with the stronger serum. Again, a study of the records would show that those who had had the smaller dose of serum had done better than those who had had a stronger dose. In fact, a careful study of the individual cases of diphtheria treated with the antitoxine in the Willard Parker Hospital would show that there had been no relation between the antitoxine treatment and the recoveries. As to the early treatment of diphtheria with antitoxine, it might be definitely and confidently stated that diphtheria at the present time almost invariably ended in recovery under any method of treatment, if the patient was brought under proper hygienic surroundings and surveillance on the first day of the disease. Diphtheria was hardly ever fatal if the patient was put to bed and properly cared for on the first day of the illness. It was the insidiousness of diphtheria that constituted its greatest danger.

Now, as to some of the untoward or unfavorable effects of the antitoxine treatment, the rashes had been spoken of in the paper and some of the minor features attributable to antitoxine, but the more serious after-effects of the antitoxine treatment had not been alluded to. The speaker would ask his hearers to go with him for the time being to the Willard Parker Hospital and see some of the effects of antitoxine which he had witnessed there. Babies had been brought to that hospital with slight clinical evidence of diphtheria; babies, with the exception of a slight exudate in the throat, and perhaps a slight croupy cough, that were apparently healthy and of a rosy color. They had remained in good condition for perhaps ten days or two weeks after receiving antitoxine; when one day, as you entered the ward, you would hear a moan, and, approaching the crib, you would find the baby lying on its side with its head retracted, with its arms and legs flexed, and moaning piteously. The speaker could best make it clear what this baby's condition was by relating a case about which he had been consulted. A physician had come to his office to advise with him regarding his wife. Two weeks previously this lady had had a slight sore throat, and a medical friend had immediately injected her with antitoxine. On the following day it had been decided that she had no diphtheria, but a slight amygdalitis, and the throat was all but well. Fifteen days after the injection of antitoxine her temperature had been 105°, her pulse 160, and she had been suffering severe pain in all her joints. Sleep and rest had been absolutely impossible, except by means of large doses of morphine administered hypodermically. This had been a case of antitoxine infection. In this case the antitoxine had been eliminated and the patient had recovered. This was the condition in which the speaker had seen many of the little babies in the Willard Parker Hospital. The temperature chart showed a record of from 105° to 106·8°, and a note of the night nurse's told that the patient had hardly slept at all. This antitoxine infection pursued one of two courses, either the symptoms gradually subsided, leaving the baby emaciated and extremely anæmic, or there might be a fluctuating temperature, ranging from 99° to 106·8° and existing for days together. What was this condition due to? It was due to the action of the antitoxine on the blood. *Horse serum dissolved human blood-corpuscles*, and thereby produced new elements of decomposition. The condition of the babies just spoken of had been one of antitoxine septicæmia, brought about by the influence of the antitoxine on the blood. A further evidence of septicæmia had been seen in occasional suppurations, as in one case in the neck and ear, in another in small points of suppuration in various portions of the body. In these cases there would be a temperature range such as had not been seen in the hospitals of this city since the introduction of aseptic surgery. This was a temperature range such as had been seen in the surgical and maternity wards of Bellevue Hospital twenty years ago.

It had been said that many of these patients treated with antitoxine had not died of diphtheria; that an autopsy had proved that the babies had recovered from diphtheria, and that the lesions showed that they had died of pneumonia after recovery from diphtheria. This pneumonia in the Willard Parker Hospital during the past three months had come on late in the course of the disease, and it had been such a pneumonia as was seen in Bellevue Hospital when they were having a great deal of septicæmia there. It was the pneumonia of septicæmia, and this septicæmia was induced by antitoxine.

A second form of antitoxine infection had been seen in the case of a little girl, thirteen months old, admitted on March 22d. She had been given the first injection of antitoxine immediately, the temperature before it being 101·6°. The temperature six hours after the injection had been 104°. The second injection had been given on the 23d, and in the afternoon of the same day the kidneys had ceased to act. The hot pack and other methods of treatment had been resorted to, but the baby had died, in spite of all treatment, on the afternoon of the 26th. Mr. Lennox Browne had reported eight cases of diphtheria treated with antitoxine, and death had resulted in six of them from inflammation of the kidneys. Benda had found nephritis in thirty-three persons out of thirty-nine that had died under the antitoxine treatment.

An instance of antitoxine infection through its action on the nervous centers had occurred in a baby, two years and four months old, admitted on March 19th. The temperature had been 101·2° on admission. The first injection of antitoxine had been given at 6.30 P. M., and the baby had had a restless night. At 5 A. M. on the 20th the temperature had been 105°; at 5.45 A. M. the baby had been in convulsions, and had died at seven o'clock in convulsions. Death had resulted in thirteen hours and fifteen minutes after the injection of antitoxine.

The third case of immediate bad result with antitoxine had been in a baby, eleven months old, admitted on March 29th. The temperature had been 101·8° on admission. The first injection had been given on the day of admission, and the second one on the following day. About twenty-four hours after the admission the baby's temperature had been 105·8°, and convulsive movements of the eyes had been noticed. Careful examination had revealed no evidence of organic disease. The baby had been in semi-stupor, the respirations twenty-eight to the minute, the pulse rapid, irregular, and intermittent. On March 31st the temperature had been 106·8°, and there had been general convulsions. At 1.30 A. M., on April 1st, the temperature had been 108°, and the baby had died an hour later in convulsions. Autopsies had been asked for in these cases but not granted in any of them. Physical examination had revealed no evidence of organic disease; they had unquestionably been cases of antitoxine poisoning. This brought us to one of the most important considerations in connection with the subject of antitoxine treatment of diphtheria—namely, *individual susceptibility to the action of remedies*. There was now present a physician who, about a year ago, had come very near dying from the influence of a single dose of one one-hundred-and-fiftieth of a grain of atropine. He had been originally healthy and well at the time, with the exception of a slight coryza. Any one in the room might have taken the same dose or double the amount without suffering any ill effects. This was one instance of individual susceptibility. As everybody knew, one person was specially susceptible to the influence of morphine, another to the influence of atropine, and so on throughout the entire list of remedies. So some individuals were specially susceptible to the influence of antitoxine. When this susceptibility existed, or to what extent, could never be known beforehand. It was the existence of this special susceptibility which caused the antitoxine to produce its fatal effects in the cases here enumerated. It was the existence of this special susceptibility or idiosyncrasy in the case of Miss Valentine that had caused her unfortunate death from a single injection of antitoxine. That the antitoxine used in her case had been irreproachable in every way had been officially certified to by the board of health of this city and that of Brooklyn. The fault had not been in the antitoxine used, but in the special susceptibility of the patient. This same antitoxine might have been used on another person without producing any ill effect. We knew nothing of this individual susceptibility beforehand, and any physician who used antitoxine took the risk of bringing about the results which the speaker had described as having occurred in the Willard Parker Hospital, and the result which had occurred in the case of Miss Valentine. A case parallel to these had been reported in the *British Medical Journal* for March 2d, page 505. A well child, three years old, had been given an immunizing dose of 2 c. c. of No. 1 Behring serum. The next morning the child had been depressed; on the following day she had had fever and violent pain in the lumbar region, and the urine had contained a considerable quantity of albumin; the next day the temperature had been 103° F., and petechiæ had appeared on the legs; and on the following day the child had died.

In conclusion, the speaker was opposed to the antitoxine treatment of diphtheria, first, because in an experience of one hundred and fifty-four cases during the months of January, February, and March, 1895, in the Willard Parker Hospital, he had failed to see the slightest evidence that it neutralized the toxæmia in a single case. He had never found that it exerted the slightest influence for good on a single clinical manifestation of the disease; on membrane, pulse, temperature, gland swelling, laryngeal symptoms, etc. Every one of these patients had been examined daily; they had been examined with care and with great solicitude, and with the desire to discover some evidence of the virtues ascribed to antitoxine by others.

Secondly, he opposed it on account of its immediate danger to life through its influence on the kidneys and on the nervous system and remotely through its influence on the blood.

Dr. **George L. Peabody** said that it was evident that we had a complicated problem to solve. He also had met with cases showing how exceedingly unsatisfactory a bacteriological diagnosis of diphtheria alone might be. In one case he had taken cultures from the throats of four children and from that of their governess, and had submitted them to an expert bacteriologist for examination. The children's throats had appeared perfectly normal, while there had been a suspicious membrane in the throat of the governess. Strangely enough, the bacteriological report had stated that Loeffler bacilli had been found only in the cultures from the throats of the children. He also knew of an individual in whose throat the bacilli had persisted for three or four months after an attack of diphtheria. These observations would seem to show that the bacilli might be present without diphtheria, but there could be no diphtheria without the bacilli. His experience with the antitoxine had been quite satisfactory, although he had seen one case in which there had been well-marked septic symptoms, such as had been described by Dr. Winters. He was inclined to think that Dr. Winters's bad opinion of the treatment might be explained by supposing that he had been treating "mixed infections." It was not improbable that some of his cases of pneumonia had really been due to streptococcus infection.

Dr. **L. Emmett Holt** said that he had observed the effects of diphtheria antitoxine in about twenty cases. These cases had been in small children in institutions in which the mortality had before been about seventy per cent., yet every child injected on the first or second day of the disease, with the exception of a baby suffering from marasmus, had recovered. He would like to protest against the slur made on the bacteriological diagnosis. Systematic examinations of this kind of all children admitted into the Babies' Hospital during the past five months had shown the presence of the Loeffler bacilli in about one third of the children. This only showed that there must be both a clinical and a bacteriological diagnosis.

Dr. **W. L. Somerset** said that, as interne of the Willard Parker Hospital for the past sixteen months, he had had an opportunity of watching the cases carefully. There had been many irregular changes of temperature, also rashes which had formerly been attributed to some digestive disturbance, but now all these phenomena were charged to the antitoxine. He showed by the hospital records that there had been a distinct lowering of the mortality rate in the croup cases since last year. In most autopsies in such cases, he said, there had been adherent membrane found below the larynx, whereas in the recent autopsies of the croup patients that had received the antitoxine treatment he had remarked the absence of membrane below the larynx.

Dr. Biggs said that any one who would deliberately state that there was little severe diphtheria now in New York city could not be considered an unbiased observer; at any rate, there had been twenty-eight hundred deaths during the past year from croup and diphtheria. He wished again to emphasize the statement that antitoxine did not neutralize sepsis or broncho-pneumonia, but simply diphtheria toxæmia. Antitoxine was beneficial in croup cases by neutralizing the diphtheria toxines and reducing the inflammatory swelling. The fact that the mortality rate from diphtheria had been suddenly lowered all over the world would seem to argue in favor of the value of antitoxine. So far as he knew, no case had been included in his statistics in which there had not been a clinical as well as a bacteriological diagnosis of diphtheria made. The hospital cases had invariably been reported to the board of health by some practicing physician to be diphtheria. At present every distinguished bacteriologist and pathologist of Europe had accepted the antitoxine treatment as a most important advance in therapeutics.

Book Notices.

Traité pratique de gynécologie. Par le Dr. A. Auvard, Accoucheur des hôpitaux de Paris. Deuxième édition, revue et augmentée. Avec 655 figures dans le texte et 12 planches en couleur hors texte. Paris: Octave Doin, 1894. Pp. 870. [Prix, 18 *fr.*]

Dr. Auvard seems to entertain a generous idea of what gynæcology should embrace, if we may judge of it by this book, for, besides the topics usually considered in gynæcological textbooks, he treats of such subjects as the cutaneous and venereal diseases of women's genitals, lithotrity, and impotence and sterility in men. This is by no means to be objected to, only we wonder why an author with such a broad conception of his theme should not have treated also of the diseases of the breast. But M. Auvard says at the outset that he restricts his book to the subject of the normal condition and the pathological states, apart from the puerperium, of the genital apparatus, and employs the term gynæcology in its present conventional sense. The true title of his work, he says, would be *Traité de génitologie féminine apuerpérale.* We think he is to be commended for having finally denied himself the pleasure of giving such a name to the book. The remainder of the introductory chapter is devoted to a sketch of what we may call the evolution of modern gynæcology, which he briefly defines as consisting of five periods: 1. The rudimentary (embryonic or vulvar). 2. That of the speculum, the era of Récamier. 3. That of hysterometry, when the essence of uterine pathology was held by some to lie in engorgement and by others in displacements. 4. The perimetric, in which the uterine annexa figured largely in gynæcological procedures, and antisepsis had paved the way for a free resort to cutting operations. 5. The present period of maturity and *épanouissement*, the history of which he thinks it would be premature to write at present.

The first chapter deals in a general way with the ætiology, symptomatology, diagnosis, and prognosis of diseases of the genital apparatus in women. In the section on physical examination M. Auvard expresses his surprise that some women tolerate digital exploration, but will not submit to ocular inspection; the vulvar touch, he says, dealing with organs of a highly developed special sensibility, is far from the decency and reserve of an examination with the eye.

In the next chapter the author treats of therapeutical measures, including the administration of such drugs as ergot, morphine, hydrastis, viburnum, hamamelis, apiol, and savine; the use of hydrotherapeutics and mineral waters; the hygiene of the clothing, including the corset and abdominal and hypogastric supporters; local bloodletting and the application of revulsives and caustics; the use of antiseptics; vaginal, uterine, vesical, and rectal injections, also interstitial injections; the employment of tampons, suppositories, and various topical applications; the use of pessaries, mechanical and medicated; gymnastics and massage; electrical treatment; and operations in so far as general principles are concerned.

It seems to us that M. Auvard has an exaggerated dread of poisoning from the use of iodoform. He says he has given up applying that substance to fresh wounds. As regards intra-uterine injections, while he lays proper stress on the importance of providing against the penetration of the liquid into the Falloppian tubes or the uterine veins, he holds that there are some cases, fortunately very rare, in which syncopal attacks can not be prevented, and occasionally death has to result. We are glad to see that in the section on pessaries the author expresses his dissent from the lever theory of the action of the Hodge pessary and his inclination to attribute its efficiency to its making pressure on the posterior vault of the vagina.

The next chapter is devoted to malformations. The subject is well discussed, but it is rather odd to find fistulæ included under the head of malformations.

The fourth chapter deals with the anatomy, physiology, diseases, and injuries of the vulva and vagina. The anatomy of the perineal and pelvic muscles and fasciæ is particularly well expounded. Nine full-page chromolithographs illustrate the chapter, most of them very poorly executed.

The fifth chapter is on the inflammatory affections of the internal genital organs and the pelvic peritonæum and connective tissue, all included under the term *génitalite*, which seems to have been coined by the author. We hope that neither that word nor *vulvorragie*, *vaginorragie*, *ovarragie*, *génitorragie*, *perigenitalia*, *coïtophobie*, *génitopathies*, nor (crowning abomination) *abdominopathies simili-génitales* will ever cease to be reserved for M. Auvard's exclusive use. The author records the general dissent of the gynæcologists of the present time from the doctrine, particularly set forth by Martineau, of the dependence of certain uterine inflammations on a diathesis, such as the herpetic, the arthritic, the syphilitic, or the scrofulous; but he does not commit himself either for or against the theory, simply remarking that in women who were obviously scrofulous he has seen endometritis with eversion pursuing an essentially chronic course and not dependent on any of the ordinary causes of metritis, so far as he has been able to discover. The author agrees with Emmet that it is of the first importance in the operation of uterine trachelorrhaphy to remove the cicatricial nodules—veritable *clous douloureux* he calls them—often found about the angle of the laceration. He describes the operation briefly with the aid of three woodcuts copied from Dr. Skene's work. The chapter closes with a long but exceedingly interesting digest, by Doyen, of the present status of the various operations for the relief or cure of inflammatory or neoplastic diseases of the uterus and its annexa, reprinted from the *Archives provinciales de chirurgie* for December, 1892.

The sixth chapter is devoted to uterine displacements. In general, the theme is well handled, but we regret to see mention made of anteflexion, for example, of the "first degree" or of the "second degree"; such distinctions we think arbitrary and difficult of definition and therefore confusing. We are sorry, too, that the author approves of the elastic ring pessary.

Succeeding chapters deal with inversion of the uterus, pelvic hæmorrhage (with a consideration of the subject of extra-uterine gestation), and tumors. We are glad to find in the last-mentioned chapter an excellent section on the palliative treatment of cancer, for the authors of gynæcological text-books are too apt to slur over this very important matter. There will always be many cases that are "inoperable" for one reason or another, and the fact that they promise no addition to the surgeon's laurels as an operator can not justify inattention to them on his part. On page 532 there is an ingenious chart contrasting the course of normal menstruation with various types of menorrhagia and intermenstrual hæmorrhage due to uterine fibroids. The electrical treatment of these tumors, as taught by Tripier and Apostoli, M. Auvard regards as in the highest degree palliative and, when carefully employed, free from danger, but he does not think it is ever really curative. He attaches much importance to its moral effect on patients who utterly refuse to submit to more radical procedures—*bistouriphobes*, as he calls them.

The next chapters are on menstrual disorders, on sterility, and on affections of the urinary tract. We do not understand what M. Auvard means by uterine urethrotomy (*urétrotomie utérine*), which he mentions, on page 687, as one of the procedures to which recourse may be had in the treatment of urethral strictures. Twice, on page 708, the author makes the statement that suprapubic cystotomy is much more difficult to perform on women than on men, but he does not specify wherein the difficulty lies, and we are inclined to think that in this matter he is in error.

Diseases of the rectum and anus, tumors of the pelvic bones, and pelvic neuralgia are the topics discussed in the next chapter. Then comes a chapter on abdominal affections simulating disease of the genital apparatus (the author's *abdominopathies simili-génitales*, before mentioned), containing a valuable section on "mechanical dyspepsia," that is to say, dyspepsia due to ptosis of some abdominal or pelvic organ, a subject to which attention has been ably drawn by M. Glénard. The book concludes with a short chapter on diagnosis.

We have remarked upon certain grotesque words employed by M. Auvard; in addition, we have noted a number of errors of expression. In the first place, throughout the book, so far as we have observed, whenever a Greek word is brought in, it is without accent or breathing, and a more glaring error in Greek is the appearance of ηρμαφροδιτος for Ἑρμάφροδιτος. The word "cœcum" appears several times instead of *cæcum*. Among misspelled proper names, we notice L*a*cas-Championnière and Neugeb*e*auer. The bad practice of making several proper names strung together do duty as substantives is exemplified in the expressions *procédé de Richelot-Byford* and *opération d'Alquié-Alexander-Adams*. A gross misuse of words—one that, unfortunately, is exceedingly common in medical writings—is shown in the phrase *rupture . . . d'une grossesse* (page 471), intended to mean, not rupture of a *pregnancy*, but of a gestation sac.

Almost all the illustrations, whether chromolithographs or woodcuts, are coarse and inaccurate. It must be said, however, that one of the two cuts representing the Sims posture—the one on page 17—comes nearer to being a true representation of that posture than most of the cuts that have been published. On pages 306 and 307 there are three cuts to show operative procedures facilitated by extreme antero-posterior distention of the vaginal orifice by means of two retractors; yet the outline of the side of the vulva, instead of running taut from one instrument to the other, sweeps outward in great amplitude and laxity. The pyramid of ring pessaries shown on page 379 is such a picture as we should hardly expect to find elsewhere than in an instrument-maker's catalogue. Wherever the clitoris is figured in sagittal section, it is of great size and looks like a tracheotomy tube just ready to drop out.

The defects we have pointed out are not of the first magnitude, and we do not think they seriously detract from the value of the work, which is great. It is a book that every gynæcologist may study to advantage.

The Principles of Surgery and Surgical Pathology. General Rules governing Operations and the Application of Dressings. By Dr. Hermann Tillmanns, Professor in the University of Leipzig. Translated from the Third German Edition by John Rogers, M. D., New York, and Benjamin Tilton, M. D., New York. Edited by Lewis A. Stimson, M. D., Professor of Surgery in the University of the City of New York, Medical Department. With Four Hundred and Forty-one Illustrations. New York: D. Appleton & Company, 1894. Pp. viii–800. [Price, $5.]

We infer that this is the first of several volumes to complete a system. As its title indicates, the book is devoted to the broad principles and pathological developments which underlie all scientific surgical practice. It is intended as a foundation upon which the student may rear the edifice of practical surgery.

The indications for an operation in general, and the discussion of the preparations for an aseptic operation, form an interesting opening chapter, which, if mastered by the student, will render him an efficient aid in the operating room early in his career. Further on the author goes over the general rules for aseptic and antiseptic operations in a most thorough and scientific manner. Why these chapters should have been separated we fail to perceive.

In the chapter on alleviation of pain during operations the author's preference for chloroform over ether is clearly manifest. Twenty-three pages are devoted to the former, while less than three are given up to the latter, and in these there occurs the remarkable statement "the action of the drug is not so lasting" as that of chloroform.

In future editions this misstatement should be left out. On page 45 credit is given to Dr. Wagner and Dr. Herzog in the conjoined use of cocaine with the galvanic current to which, we believe, Dr. Corning, of New York, is entitled.

The second section of the work is devoted to the methods of applying surgical dressings. The first chapter in this section, on antiseptic and aseptic protective dressings, is almost beyond criticism. It is worth the price of the book. The chapters on bandaging and surgical appliances are disappointing, and not to be compared with those in some of our American surgeries.

The third section is devoted to surgical pathology and therapy. Here are discussed the various inflammations and injuries of the different tissues of the body in a most thorough and interesting manner. The morphology and significance of micro-organisms, the infectious wound diseases, and the specific bacterial or microbic affections which generally come under the care of surgeons are grouped together, and the latest theories and treatment of them given. The space devoted to some of them would seem inadequate were it not that they only remotely relate to surgery and belong more properly to other branches of medicine.

Much of the chapters on injuries and diseases of the bones and joints will have to be repeated in the volumes on regional surgery, for it is impossible to discuss specific lesions without referring to these general principles. The concluding section, on tumors, is the most succinct and satisfactory *résumé* of the subject that we know of.

As an introduction to the study of surgery this is indeed a useful book.

Notes on the Newer Remedies. Their Therapeutic Applications and Modes of Administration. By David Cerna, M. D., Ph. D., Demonstrator of Physiology and Lecturer on the History of Medicine in the Medical Department of the University of Texas, etc. Second Edition, enlarged and revised. Philadelphia: W. B. Saunders, 1895. Pp. 11 to 253. [Price, $1.25.]

The appearance of this new edition of Dr. Cerna's very valuable work shows that it is properly appreciated. The author must have done an immense amount of reading to obtain the data that he has condensed within so small a compass, and it is evident that his reading has been critical. The book ought to be in the possession of every practicing physician.

Dissections Illustrated. A Graphic Handbook for Students of Human Anatomy. By C. Gordon Brodie, F. R. C. S., Late Senior Demonstrator of Anatomy, Middlesex Hospital Medical School, etc. In Four Parts. Part III. The Head, Neck, and Thorax. With Twenty Colored Plates (five of which are full size and the rest two-thirds natural size) and Eight Diagrams. London and New York: Whittaker & Co., 1894. Pp. 75 to 114. [Price, $2.50.]

It is difficult to add anything to what has already been said regarding the first and second parts of this work. Taken together, the collection of superb plates will form a beautiful addition to an anatomist's library.

BOOKS, ETC., RECEIVED.

Text-book of Diseases of the Kidneys and Urinary Organs. By Professor Dr. Paul Fürbringer, Director of the Friedrichshain Hospital, Berlin, etc. Translated from the German with Annotations by W. H. Gilbert, M. D., Physician in Baden-Baden, etc. With Commendatory Letter from Sir Thomas Grainger Stewart, M. D., F. R. S. E., Physician in Ordinary to H. M. the Queen, for Scotland, etc. In Two Volumes. Vol. I. London: H. K. Lewis, 1895. Pp. 194.

A Manual of the Modern Theory of Surgical Asepsis. By Carl Beck, M. D., Visiting Surgeon to St. Mark's Hospital, etc. With Sixty-five Illustrations in the Text, and Twelve Full-page Plates. Philadelphia: W. B. Saunders, 1895. Pp. 6 to 306 [Price, $1.25.] [*Saunders's New Aid Series.*]

A Book of Detachable Diet Lists. For Albuminuria, Anæmia, Debility, Constipation, Diabetes, Diarrhœa, Dyspepsia, Fevers, Gout or Uric-acid Diathesis, Obesity, Tuberculosis, and a Sick-room Dietary. Compiled by Jerome B. Thomas, A. B., M. D., Visiting Physician to the Home for Friendless Women and Children, etc. Philadelphia: W. B. Saunders, 1895. [Price, $1.50.]

Manual of General Medicinal Technology, including Prescription-writing. By Edward Curtis, A. M., M. D., Emeritus Professor of Materia Medica and Therapeutics, College of Physicians and Surgeons, Medical Department of Columbia College, in the City of New York. Third Edition. Conformed to the U. S. Pharmacopœia of 1890. New York: William Wood & Company, 1895. Pp. viii–235.

Les tuberculoses animales. Leurs rapports avec la tuberculose humaine. Par Edward Nocard, professeur à l'École vétérinaire d'Alfort. Paris: G. Masson, 1895. Pp. 5 to 208. [*Encyclopédie scientifique des aide-mémoire.*]

Maladies congénitales du cœur. Par A. Moussous, professeur agrégé à la Faculté de médecine de Bordeaux, etc. Paris: G. Masson, 1895. Pp. 5 to 238. [*Encyclopédie scientifique des aide-mémoire.*]

Rapport et mémoires sur l'éducation des enfants normaux et anormaux. Par E. Séguin. Préface par Bourneville, médecin de la section des enfants de Bicêtre, etc. Paris: Felix Alcan, 1895. Pp. xxxviii–2 to 376. [*Bibliothèque d'éducation speciale.*]

Memorabilien. Zeitschrift für rationelle praktische Aerzte. In Verbindung mit Dr. Guido Bell, Indianapolis, Primärarzt Dr. E. Bock, Laibach, Dr. W. Güntner, Regierungs-Rath und Professor in Salzburg, etc. Herausgegeben und redigirt von Dr. Friedrich Betz, praktischer Arzt in Heilbronn a. N. XXXIX. Jahrgang. I. Heft. (Neue Folge, XIV. Jahrgang.) Heilbronn: Albert Scheurlen, 1895. Pp. 64.

Transactions of the Obstetrical Society of London. Vol. XXXVI. For the Year 1894. Part IV for October, November, and December.

Report of the Commissioner of Education for the Year 1891 to 1892. Volume I, containing Part I. Volume II, containing Parts II and III.

Eighth Annual Report of St. Margaret's Hospital of Kansas City, Kansas.

Infection and Immunity, with Special Reference to the New Diphtheria Antitoxine. By Charles Russell Bardeen, B. A., Baltimore. [Reprinted from the *School Bulletin.*]

Consideration of Some of the Indications for Operation in Head Injuries. By William N. Bullard, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal.*]

Cerebellar Tumor. Operation; Hæmorrhage from Defect of Occipital Bone; Death; General Remarks. By W. N. Bullard, M. D., and E. H. Bradford, M. D. [Reprinted from the *Boston Medical and Surgical Journal.*]

Cœliotomy for Puerperal Septicæmia and Peritonitis. By Charles P. Noble, M. D., Philadelphia. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

The Results obtained from the Use of Aniline Products in the Treatment of Carcinoma. By Willy Meyer, M. D. [Reprinted from the *Annals of Surgery.*]

Recent Methods of Gastrostomy for Stricture of the Œsophagus. By Willy Meyer, M. D. [Reprinted from the *American Journal of the Medical Sciences.*]

An Improved Method of the Radical Operation for Carcinoma of the Breast. By Willy Meyer, M. D. [Reprinted from the *Medical Record.*]

Modern Surgery of the Pelvic Floor in Women. By George H. Kirwan, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Vaginal Hysterectomy as done in France. By Edgar Garceau, M. D., Boston. [Reprinted from the *American Journal of Obstetrics.*]

A Case of Cystitis, Pyelonephritis, and Pyonephrosis due to Colon-bacillus Infection. By F. Tilden Brown, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

Complications of Vaccination. By Louis Frank, M. D., Milwaukee. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

Nuove ricerche sperimentale sullo strepto-bacillo dell' ulcera venerea. Per il Dott. P. Colombini, Aiuto. Siena: Tip. S. Bernardino, 1894. Pp. 5 to 82.

Lo stato della milza nella sifilide acquisita. Studio Clinico e critico. Per il Dott. P. Colombini, Aiuto. Comunicazione fatta alla R. Accademia dei Fisiocritici nell' Adunanza.

Miscellany.

The Study of Anatomy and Pathology in New Jersey. —The text of a new law of the State of New Jersey, "to provide for the incorporation of pathological and anatomical associations for the advancement of medical and surgical science," is as follows:

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That any three or more physicians duly authorized and licensed to practice medicine under the laws of the State of New Jersey, who shall desire to associate themselves together for the purpose of pathological and anatomical study and the advancement of medical and surgical science may make, record, and file a certificate in writing in manner hereinafter mentioned.

2. *And be it enacted*, That such certificate in writing shall set forth:

I. The name or title assumed to designate such association;

II. The place or places in this State where the purposes of such association are to be carried out;

III. The purposes for which the association shall be formed;

IV. The names of the governors or directors who shall manage its affairs for the first year of its existence.

3. *And be it enacted*, That such certificate shall be proved or acknowledged and recorded, as is required of deeds of real estate, in a book to be kept for the recording of certificates of incorporation in the office of the clerk of the county where the purposes of such association are to be carried out, and after being so recorded shall be filed in the office of the secretary of state; the said certificate, or a copy thereof, duly certified by said clerk or secretary, shall be evidence in all courts or places.

4. *And be it enacted*, That upon making such certificate and causing the same to be recorded and filed as aforesaid, the said physicians so associating, their successors and assigns, shall, by virtue of this act, be a body politic and corporate in fact and in law, by the name stated in such certificate, and by that name they and their successors shall have perpetual succession and power to sue and to be sued, plead and be impleaded, answer and be answered unto, in all courts and places whatsoever, to make and use a common seal, and the same to use at pleasure and take, have, hold, receive and enjoy any lands, tenements or hereditaments in fee simple or otherwise, and any goods, chattels or property of any description, real or personal, and whether acquired by gift, grant, devise, bequest or otherwise, and the same to grant, convey, lease, assign, sell or otherwise dispose of for the purposes of said association.

5. *And be it enacted*, That the directors or governors of such association shall have power from time to time to make, alter and amend by-laws not inconsistent with the constitution of the United States or of this State, fixing or altering the number of its governors or directors for the management of its property and the regulation and government of its affairs and providing for the mode of filling vacancies in and removing any member from their number and prescribing qualifications for membership of the association and to appoint such agents and officers as shall in their judgment tend to promote or advance any purpose of the association and to prescribe their respective duties.

6. *And be it enacted*, That no governor or director of any association organized under this act shall receive, directly or indirectly, any salary or emoluments from such association, nor shall any compensation whatever be voted, allowed or paid by the governors or directors thereof, to any governor or director for services, either as governor or director, or in any other capacity.

7. *And be it enacted*, That the property of any association organized under this act and held for its purposes to an amount not exceeding five thousand dollars shall not be liable to the imposition of any taxes.

8. *And be it enacted*, That whenever an association shall be formed or organized under this act in any county of this State, all public officers, agents, and servants, and all officers, agents, and servants of any such county or of any city, township, borough, district, and other municipality and of any and every almshouse, prison, morgue, hospital, or other public institution in such county, having charge or control over dead human bodies, required to be buried at the public expense, are hereby required to notify the president or other head officer of any such association or such person or persons as may, from time to time, be designated by said association as its duly authorized officer or agent, whenever any such body or bodies come to his or their possession or control, and shall, if such association or its duly authorized officer or agent request it, without fee or reward, deliver such body or bodies, and permit such association and its duly authorized officers or agents, who may comply with the provisions of this act, to take and remove all such bodies, to be used within this State for the advancement of medical and surgical science; but no such notice need be given, nor shall any such body be delivered, if any person claiming to be, and satisfying the authorities in charge of said body that he or she is, of kindred or is related by marriage to the deceased, shall claim the said body for burial, but it shall be surrendered for interment; nor shall the notice be given or body delivered, if such deceased person was a traveler who died suddenly, in which case the said body shall be buried.

9. *And be it enacted*, That the said association may employ a carrier or carriers for the conveyance of said bodies, which shall be well inclosed within a suitable encasement and carefully deposited free from public observation; the drivers or persons in charge of such carrier or carriers shall obtain receipts by name, or, if the person be unknown, by a description of each body delivered by him, and shall deposit said receipts with the person or persons in charge of the institution from which the said body was taken.

10. *And be it enacted*, That no association organized under this act shall be allowed or permitted to receive any such body or bodies until a bond shall have been given to the State of New Jersey by the said association, with two or more sureties, to be approved by the clerk of the court of common pleas of the county in which such association shall be organized, and shall be filed with the said clerk of said court, which bond shall be in the penal sum of one thousand dollars, conditioned that all such bodies which the said association shall receive shall be used only for the promotion of medical and surgical science within this State; and whosoever shall sell or buy such body or bodies, or in any way traffic in the same, or shall transmit or convey, or cause or procure to be transmitted or conveyed, said body or bodies to any place outside this State, shall be deemed guilty of a misdemeanor, and shall, on conviction thereof, be punished by a fine not exceeding two hundred dollars or be imprisoned at hard labor for a term not exceeding one year, or both, at the discretion of the court.

11. *And be it enacted*, That neither the State nor any county or municipality, nor any officer, agent, or servant thereof, shall be at any expense by reason of the delivery or distribution of any such body or bodies, but all the expense thereof shall be paid by the association receiving said body or bodies.

12. *And be it enacted*, That whenever more than one association shall be organized under this act within the same county it shall become the duty of the board of governors or directors of each association so as aforesaid organized within the same county to appoint two of their own number, who together shall constitute a board of distribution of dead human bodies, subject

to delivery to such associations under the provisions of this act, which board of distribution shall be notified, as provided in the eighth section of this act, whenever any body or bodies may be subject to delivery under the provisions of this act, and it shall be the duty of said board of distribution to distribute the bodies which may from time to time be so delivered to it under the provisions of this act equally and in just rotation among the different associations organized under this act.

13. *And be it enacted*, That it shall be lawful for any association organized under this act to apply for and to receive from any county in this State dead human bodies, which may be required to be buried at the public expense and which shall not be claimed by any kindred or relation, as provided in the eighth section of this act, and it shall be lawful for any public officer or agent or any person in charge of a public institution as enumerated and set forth in the eighth section of this act, to deliver such human body or bodies under the restriction of said eighth section of this act, to any association organized under this act in any county in this State; *provided, however*, that when any such association shall have been organized in any county, no body or bodies shall be removed to another county without the association or associations within said county having had an opportunity to receive said body or bodies.

14. *And be it enacted*, That any person having duties enjoined upon him by the provisions of this act who shall neglect, refuse, or omit to perform the same as hereinbefore required, shall, on conviction thereof, be liable to fine of not less than ten dollars nor more than one hundred dollars for each offense.

15. *And be it enacted*, That all acts and parts of acts inconsistent with this act be and the same are hereby repealed.

16. *And be it enacted*, That this act shall take effect immediately.

Phlebitis Due to Grippe.—In the *Nouveau Montpellier médical* for March 9th there is an article on this subject by M. Estor, who remarks that, owing to its many complications, the grippe belongs to surgery as well as to medicine. This infectious pyrexia, he says, often gives rise to moderate otitis, and it becomes localized in the articulations, producing the arthropathy so common in microbian diseases. Occasionally it causes suppuration of the pleura. The circulatory system is sometimes involved and may present a more or less profound alteration after the disease has run its course. The heart, the arteries, and the veins may be attacked, and grippal gangrene following arterial lesions has been observed. Venous thrombosis is a complication which, without being very rare, says M. Estor, is certainly not frequent.

Phlebitis was observed during the first epidemic of 1889, and in 1890 M. Laveran reported to the *Société de biologie* that phlebitis was a frequent complication. The venous complications were observed not only in Paris, but in Marseilles and in Lyons. M. Teissier, in his remarkable work on grippe, described phlebitis in the chapter on grippe complications, referred to twenty-five cases that had been published, and presented five personal observations. Brault, Troisier, Legendre, and others observed similar cases, and M. Rendu observed several cases, among which the following seemed particularly interesting to the author: The patient had recovered from an attack of grippal broncho-pneumonia when thrombosis of the primitive iliac arteries supervened, and this was followed by gangrene of the legs. At the autopsy, in addition to the arterial lesions, the femoral vein was found to be obliterated at the level of Scarpa's triangle by a clot measuring about five centimetres in length which contained pneumococci and furnished fertile cultures.

Not every phlebitis, says the author, that appears at a more or less remote time from the onset of the disease should be considered, in reality, as being grippal in its nature. In order that the facts may be convincing, it is necessary that the relation between phlebitis and grippe should not be open to doubt, and that grippal infection alone may explain the cause of phlebitis. M. Estor relates the histories of several cases which had come under his personal observation, of which the following are the most important: The first case was that of a man, fifty one years old, who was in good health and had no varicose veins. On January 4, 1890, he was attacked with grippal broncho-pneumonia, and ten days later, after the bronchitis had disappeared, pains set in in the calf of the right leg and finally spread to the thigh. This was the beginning of phlebitis of the deep veins, which persisted for three months, and for five or six months afterward the leg became swollen on the least exertion. In December, 1894, the same patient had a second attack of bronchitis, and eight days after the onset of the disease phlebitis of the deep veins of the right leg appeared, and at the time of the report the patient had not recovered. The second case was that of a man, fifty-three years old, on whom the author had performed an operation for fistula of the anus in December, 1894. The fistula had been extensively cut, there had been no suppuration, and the patient had been entirely cured when, on the 15th of January, very distinct symptoms of grippal infection appeared, and pleuro-pulmonary congestion of the right side set in, which disappeared quickly, however, under the influence of the treatment, and the patient had apparently recovered when he complained of pains and swelling in the left leg; there was no cordlike induration in the situation of the internal saphenous vein. Absolute rest was prescribed, but on the 5th of February the patient, while making a sudden effort, died at once.

The existence of grippal phlebitis, says M. Estor, appears to be established by indisputable facts; moreover, the study of infectious diseases induces us to admit the nature of this phlebitis, and we really know that venous complications are not rare in microbian diseases. In typhoid fever particularly, Bouillaud, Chomel, and Trousseau for a long time observed the appearance of phlegmasia. Hutinel's and Vaquez's works confirm these observations, and all agree that it is at the decline of the fever that phlegmasia appears, and it is also at the decline of grippe that phlebitis shows itself, and, in all cases, when the patient appears to be entirely cured. Sometimes it is the fifteenth day, sometimes the tenth or the twenty-fifth, according to the gravity of the initial infection. Thrombosis has also been observed in light cases as well as in serious ones. It is very perplexing, says the author, to discover the causes of the grippal infection in the veins. The patients in the cases described, and in the majority of others, were healthy persons without atheroma or varicose troubles. Vaquez maintains that grippal phlebitis attacks especially those who are exhausted by other affections, such as cachexia, cancer, chlorosis, etc., but the author's observations do not confirm this opinion.

Phlebitis always attacks the same place, and it is invariably in the veins of the legs that the disease becomes localized. Sometimes it is the superficial blood-vessels, sometimes the deep ones that are invaded. Authors, says M. Estor, have been careful to point out that palpation did not reveal a cordlike induration on the inner surface of the leg, and that the patients complained of pain at the fold of the groin and in the hollow of the popliteal region, and they have rightly concluded that it was the deep veins that were attacked. In several cases phlebitis was bilateral, but the legs were not generally attacked at the same time.

Apart from this information as to the seat of the disease, the author says, we learn little from pathological anatomy, for autopsies are very rare, and in nearly all cases the termination is favorable.

Pain is the first symptom, and sometimes, in cases of superficial phlebitis, it is found along the course of the internal saphenous vein; at other times, and more frequently when it attacks the deep veins, it involves the muscles of the calf of the leg, the popliteal vein, and the fold of the groin. Characteristic œdema occurs afterward, the duration of which is variable. The swelling always persists for a month, and often three months elapse before it entirely disappears. Disorders of the sensibility may be observed occasionally, and a rather marked muscular atrophy has been noted, which is explained not only by the enforced rest, but also by the phlebitic alterations of the vasa nervorum.

M. Estor remarks that he has called attention anew to this complication of grippe in order that physicians may carefully watch their patients during the decline of grippe and prescribe absolute rest as soon as slight pain or œdema appears in the leg.

The same journal publishes a report of a recent meeting of the *Société de médecine et de chirurgie pratiques*, of Montpellier, at which there was a discussion on this subject in which M. Tédenat remarked that one of the cases reported by M. Estor was not conclusive, as the patient had had varices. This, he said, did not prove, of course, that there had been no well-established cases of grippal phlebitis; nevertheless, it was necessary to be very careful and to take into consideration the phlebitis which had been due to other infectious diseases.

M. Forgue remarked that rheumatic phlebitis had also existed, and he asked M. Estor if, in the cases referred to, rheumatism had not been present. M. Estor replied that there had been nothing of the sort. M. Tédenat related the case of a patient who had presented arterialization of the internal saphenous vein after an attack of erysipelas. M. Rauzier had seen a syphilitic patient who had presented a tumefaction in the supero internal region of the thigh, and the saphenous vein had been found to be very hard.

The Artificial Feeding of Infants.—In the *Revue internationale de médecine et de chirurgie pratiques* for March 25th there is an abstract of an article by M. Laskine which was published in the *Gazette des hôpitaux* for January 25th. This question, says the writer, is one of great interest to the physician and especially to the obstetrician. Frequently, for many reasons, natural nursing is impossible, and among the rich a wet-nurse may always be employed, but among the poor artificial feeding becomes a necessity. Under some circumstances the child may be nursed directly from an animal, and it is in this way that goats, sheep, and asses have been used. In large cities it is customary to have a sufficient quantity of milk for the day left at the house, and the milk from one cow is often set aside for the child's use. This practice, says the writer, is condemned by authors who have studied the question. Trousseau advises mixing the milk from different cows, and more recently Gautrelet and Brücke advised the same practice, thinking that in this way the noxious influence of contaminated milk might be lessened. The author has investigated various methods of preserving milk for artificial nursing, and after having tested the effect of cold, of boiling, and of alkalinization, he expressly recommends sterilization. With regard to sterilized milk being easily digested, he says, there are many opinions, but experiments have shown that it is as easily digested as fresh or boiled milk. With regard to diluting the sterilized milk, those who are in favor of doing so advance the following arguments: Cow's milk is different in composition from woman's milk; besides, boiling the milk causes it to become more concentrated, and in this condition it is often difficult of digestion. Other authors do not accept this theory. According to Parrot, Galanine, and Perron, dilution does not change the properties or the reciprocal proportions of all the component parts, and the water may be a source of infection.

This divergence of opinion, says the writer, shows that there is no fixed rule, and that, when it is necessary, the milk should be diluted according to its richness, and especially with regard to the way in which the child tolerates it. The water should previously be boiled and filtered.

Notwithstanding the success which has been used as an argument in favor of sterilized milk, the writer thinks with M. Budin and M. Laskine that no artificial food should be substituted for the mother's milk unless it is absolutely necessary, in which case sterilized milk should be given the preference.

The Cataphoric Application of Hydrogen Dioxide.—In an editorial in the April number of the *Dental Cosmos* the writer, referring to the therapeutic application of the electric current, says that a number of experiments have shown that certain medicines when topically applied may be driven into the subjacent tissue by the electric current. That absorption of drugs by this method has been greatly aided, and their effect enhanced, has been proved, he says, beyond a doubt. An interesting adaptation of the cataphoric method in bleaching discolored teeth is as follows: The tooth to be bleached is prepared and desiccated, with the rubber dam adjusted in the same way as in ordinary bleaching operations. A pledget of cotton saturated with a twenty-five-per-cent. solution of pyrozone is introduced into the pulp-chamber, the canal, and the cavity of decay, and the positive pole of a battery of low tension, furnished with a needle-like platinum electrode, is put in contact with the pyrozone. The negative electrode may be held in the patient's hand, or when mounted with a suitable point may be applied to the outer enamel surface, and the current short-circuited through the tooth structure in any desired direction. Decomposition of the pyrozone follows at once the completion of the circuit, and bleaching rapidly ensues. By applying the negative electrode to the enamel surface the bleaching effect is produced immediately under the point of contact, and can thus be brought to bear on any area of local discoloration at will. The treatment of pulpless teeth in the manner indicated, says the writer, is an advance over former methods, and one of more significance than may appear from a casual observation.

Bleaching a tooth by any method which insures thoroughness of the operation is equivalent to absolute sterilization. This, no doubt, is attainable with pyrozone unassisted if sufficient time is taken to accomplish the result; but by means of the cataphoric action of the electric current as noted, pyrozone is driven to the ultimate ramifications of the tubuli, and its active oxygen set free by the current in direct contact with any organic *débris* which may be present as a menace to the future comfort and integrity of the tooth.

It is evident, says the writer, that the cataphoric method is applicable to the therapeusis of pulpless teeth by other medicaments than pyrozone, and a wide field of possible usefulness in this department will, no doubt, be opened up by further investigation. The writer says he has tested the cataphoric application of twenty-five-per-cent. pyrozone in the bleaching of teeth with most satisfactory results, which in point of rapidity and efficacy were, beyond all question, superior to that resulting from applications of the same material when used without the aid of the electric current.

THE NEW YORK MEDICAL JOURNAL, April 20, 1895.

Original Communications.

REPORT OF
SEVEN CASES OF DOUBLE CASTRATION
FOR RELIEF OF ENLARGED PROSTATE GLAND.*

By H. O. WALKER, M. D.,
DETROIT, MICH.

The operation of removing both testicles for the relief of symptoms consequent to an hypertrophied prostate gland is in its infancy, and is therefore claiming the critical attention of surgeons generally. Yet before it becomes an accepted or rejected procedure we must have cumulative evidence as to results, and this is my apology for offering a report of seven cases of double castration that have not heretofore been published.

Case I.—G. B., aged sixty-five years, came into my care January 21st by advice of his physician, Dr. Campbell, of Lansing, Mich., with a history of enlarged prostate dating back over a period of nearly eight years. Has had to use a catheter for over a year past and has all the symptoms of an aggravated cystitis which I verified by vesical and rectal examinations, together with a urinary analysis. He had lost flesh in considerable quantity, and the night before I saw him had slept but little on account of the frequent desire to urinate, and, as he expressed himself, was ready to submit to any operation however hazardous. Even death was preferable to his present condition. He readily assented to the removal of his testicles, which I did January 23, 1895, and, with the exception of a small hæmatocele, there were no untoward symptoms and he was able to be about in eight days. On the third day he could retain his urine for from three to five hours. On the eighth day the use of the catheter was discarded and the urine, nearly clear in character, was retained from six to nine hours. He left for his home on the twenty-first day following the operation, when I examined *per rectum* the prostate and found an appreciable diminution in its size. I received a letter from him two weeks ago in which he was not cognizant of having any difficulty whatever in passing his urine.

Case II.—P. B, aged seventy-one years, has had increasing difficulty in voiding urine for nearly fifteen years. Uses a catheter and desires to urinate at intervals of from five minutes to an hour and a half. Examination revealed a very much enlarged prostate with a centric median bar holding behind it from two to three ounces of residual urine with the usual cystic symptoms. I removed both testicles February 6, 1895. Improvement was appreciable within a week, holding the urine at one time nine hours and a half. Since getting up, however, the improvement has not been so marked, and at times he has to use a catheter. Yet the cystitis has nearly disappeared, as I found by examining the urine a few days ago, and there is a manifest relief in his condition.

Case III.—A man, aged sixty-three years, has a history of prostatic enlargement of seven years' duration. Four years ago I removed from him by perineal section a median pedunculated growth of considerable size which was followed by a fair amount of relief for nearly three years, when the old symptoms gradually returned to their former intensity with an almost constant reminder that he had to void his urine. After several consultations with me he decided to have double castration done, which I did February 26, 1895. He left for his home two weeks after the operation with a decided abatement of his bladder symptoms. A letter from him, dated March 29, 1895, states that "there is but little pus in the urine, entire subsidence of pain, urinates but about once in four hours, and does not have to use a catheter."

The cases just reported, although in one there is apparent cure and in the others evident improvement, are of such recent date that I should hardly feel warranted in offering dogmatic conclusions as to permanent results. I have, however, older and more reliable testimony as to the efficacy of this operation furnished by my old friend Dr. Horace Tupper, of Bay City, Mich., who writes me as follows:

My dear Doctor: According to promise I made you while here, I have been looking up notes of the history of cases in which I did double castration, and here briefly transmit them to you:

Case I was in a French Canadian, aged fifty-six years, who consulted me in 1877 for an enlarged and painful right testicle. Also frequent and painful micturition, necessitating the use of a catheter almost daily, and at times much oftener. I found by examination that he also had a very large prostate as well as the absence of the left testicle, which he informed me had been removed more than a year previous for supposed malignancy. Its removal had improved his micturition materially for several months, but the previous symptoms gradually returned with greater intensity than before, when he decided to have the other removed, which I did, although no cancer cells were found. By the time the wound had healed all the bladder symptoms had disappeared. I saw him some years afterward, when he said he had had no further trouble with micturition.

Case II, M. C., aged fifty-nine years, called on me in 1882 suffering from painful testicles and persistent desire to urinate of several years' standing. I found a greatly enlarged prostate. He had used a catheter for a considerable period, and had had the bladder aspirated for retention. His principal reason for visiting me was for the purpose of having his testicles removed, as he had been advised by several physicians to have the operation done, since all other efforts to relieve the neuralgia of the testicles had been futile. On the second day after castration he was surprised to find that he could make water without his catheter, and in about two weeks there was but little bladder irritation remaining. Six months afterward he informed me that he could urinate as well as he ever did, and to my surprise he stated that he could enjoy intercourse more satisfactorily than he had for six years past, and, to use his own language, said: "I am sorry that I did not have the damned stones out before."

Case III, B., aged fifty-eight years, consulted me in 1886 concerning the advisability of having his testicles removed for persistent and exquisite pain in them of ten years' duration. He also gave a history of irritable bladder and a frequent use of the catheter. I found, on examination, both testicles enlarged and exquisitely sensitive, and a very large prostate. As it was the opinion of a number of physicians that castration should be done, I accordingly did the operation. He made a good recovery, entire relief from pain and freedom from all bladder trouble in three weeks following the operation. He left the city shortly afterward and I have not seen him since.

Case IV was that of an old man that came to my knowledge through a consultation with the late Dr. Thomas, of Bay City, over ten years ago. The fellow was an inmate of the County House, confined there principally for exposing his person on improper occasions. Dr. Thomas was treating him at the time, not only for his mental condition, but for the distressing bladder irritation due to an enlarged prostate gland. He was afterward removed to his home, when another physician assumed charge of the case, and removed both testicles with a view of relieving his mania. The castration cured both the brain and bladder troubles. I have seen him frequently since, and he is perfectly well.

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* Read before the Tri-State Medical Society, April 4, 1895, at St. Louis.

Dr. Tupper's report is valuable evidence in relation to the operation of double castration. The operations were not done with a view of relieving the urinary symptoms, but were evidently done in the first three cases for the purpose of relieving the neuralgia of the testicles, in the last one for the correction of the mental difficulty.

It is not my purpose at the present time to burden you with an account of the development, anatomy, function, pathology, and surgery of the prostate. That is familiar to you all. Suffice it to say that the majority of enlarged prostates, when necessary, can be cared for by proper aseptic catheterism, for I firmly believe that "dirty old catheters" have been the source of the great majority of the cases of cystitis that we meet with in connection with hypertrophied prostates than from any other cause. Aseptic catheterism is much better than antiseptic irrigation.

Operative procedures for the relief of distressing symptoms accompanying hypertrophied prostate are not always attended with any great "haven of rest," except wherein death follows in the wake of the operation. Prostatectomies are questionable in their results. Suprapubic or perineal drainage are simply palliative measures, the best of which is perineal, and do not materially diminish the size of the prostate, the great impediment to urination.

Sir Henry Thompson aptly describes the condition of the patient after making a suprapubic section: "Now mark his condition. He was able to walk three or four miles a day, was free from pain, and his general health was on the whole good. But he had constantly to wear his silver cannula, and supplemented his own faulty anatomy with the ordinary urinal worn by persons requiring such a convenience. Instead of the simple method of relief which normally precedes sleep, this man had to wash out a large part of his urinary tract. First, he removed and washed his cannula, then, I suppose, he cleaned out his rubber bag, and, lastly, the relics of his bladder."

The restoration of the normal function of micturition has only been realized to a limited extent by the various operations done upon the prostate. We are therefore in a position to welcome any operation that promises a safer and more radical cure. The reports of castration so far are certainly promising. It unquestionably gives rest to the genital function of the prostate, lessens its size, first, by arrest of inflammation and œdema, and afterward gradual atrophy, as has been proved by castration of many of the lower animals. Indiscriminate emasculation will do much toward bringing this operation into disrepute. Simplicity of execution and limited danger will be a great temptation to the neophyte to do this operation. I fully agree with Dr. Belfield in his warnings against castration. Yet I am willing to trust to the experience of genito-urinary surgeons to make out a diagnosis of the many conditions which may occur in connection with an hypertrophied prostate, and the "mistaken diagnosis" is no more likely to take place than it would with any of the operations upon the prostate. Time, however, and experience of operators will, at all events, settle the merits of double castration for the relief of the hypertrophy of the prostate gland.

27 East Adams Avenue.

A METHOD FOR
RESUSCITATION FROM ELECTRIC SHOCK.

By P. J. GIBBONS, M. A., M. D.,
SYRACUSE, N. Y.

When a person receives an electric shock sufficient to produce suspended animation, the breathing and heart's action cease; the eyelids are generally half closed, the pupils dilated; the tongue approaches to the under edge of the lips; finally, coldness and pallor of the surface increase.

When one in whom the vital spark may possibly not yet have fled is found, two objects should be aimed at, viz.: first, to restore breathing; and second, to promote warmth and circulation.

When an electric-shocked person is found, he must be treated on the spot in the open air. On no account waste precious time by removing him to a house, unless the weather is intensely cold. Secure a return of breathing, first protecting him, if necessary, from the severe cold by coats, blankets, etc. Keep bystanders off fifteen or twenty feet, place him on his back, loosen all tight clothing, remove false teeth and foreign bodies from the mouth and nose. To excite breathing, resort to Sylvester's method, or any of the well-known methods for resuscitation from drowning, remembering there is no water to be expelled. If no success follows, imitate breathing by inserting the distal end of the tube of my apparatus into the nostrils or the mouth, preferably the nostrils, as in this way the air, during inspiration and expiration, comes in contact with the lining membrane of the nasal chambers. In doing so it allows the membrane to carry out its normal physiological action, and by this means we get so much nearer a normal respiration. The air thus breathed is both warmed and saturated to a certain extent with watery vapor, and much of the dust and other foreign matter floating in the air is removed by adhering to the moist mucous membrane. Or, instead of inserting the distal end, as mentioned above, my face-mask attachment may be used. The nostrils should be excited with snuff, hartshorn, or smelling salts. This can be readily done without the removal of the tube, by allowing the exciting agent to enter the bellows with the fresh air or oxygen.

To Restore Circulation.—The above measures are directed wholly to restoring the breath. This is the first necessity. There should be no rubbing of the surface while this is going on. Should the inclemency of the weather demand the removal of the patient indoors, the above movements must be kept up even while he is being removed, and on no account should he be taken into a warm or crowded room. When the patient begins to breathe, commence rubbing the limbs. Rub them upward with considerable briskness and pressure. Use silk somewhat warmed; throw a quilt or blanket over the patient, and continue friction under this. The friction in this way will create electricity and heat. Put warm bricks or bottles of warm water at the feet, between the thighs, and under the armpits; but be very careful not to have these things too warm, or much above the temperature of the healthy body.

Physicians may insert the distal end of my apparatus through the mouth into the laryngeal entrance, as they would introduce a tube for intubation of the larynx. Some will probably find it more convenient to perform tracheotomy and insert the tube into the trachea. They can also use electric batteries to keep up body heat, body electricity, and to excite the heart and the lungs to action.

My method, or any other used, should not be discontinued for at least three to six hours, and the operator should not be discouraged if he sees no symptoms of returning life until this amount of time has elapsed. Why no symptoms of life are seen for one or two hours, and may be shown later, I shall not attempt to explain, but such is the case in my experience. Before giving up all hope I recommend the injection of an alkaline solution into the body, such as has been tried upon people who have bled to death.

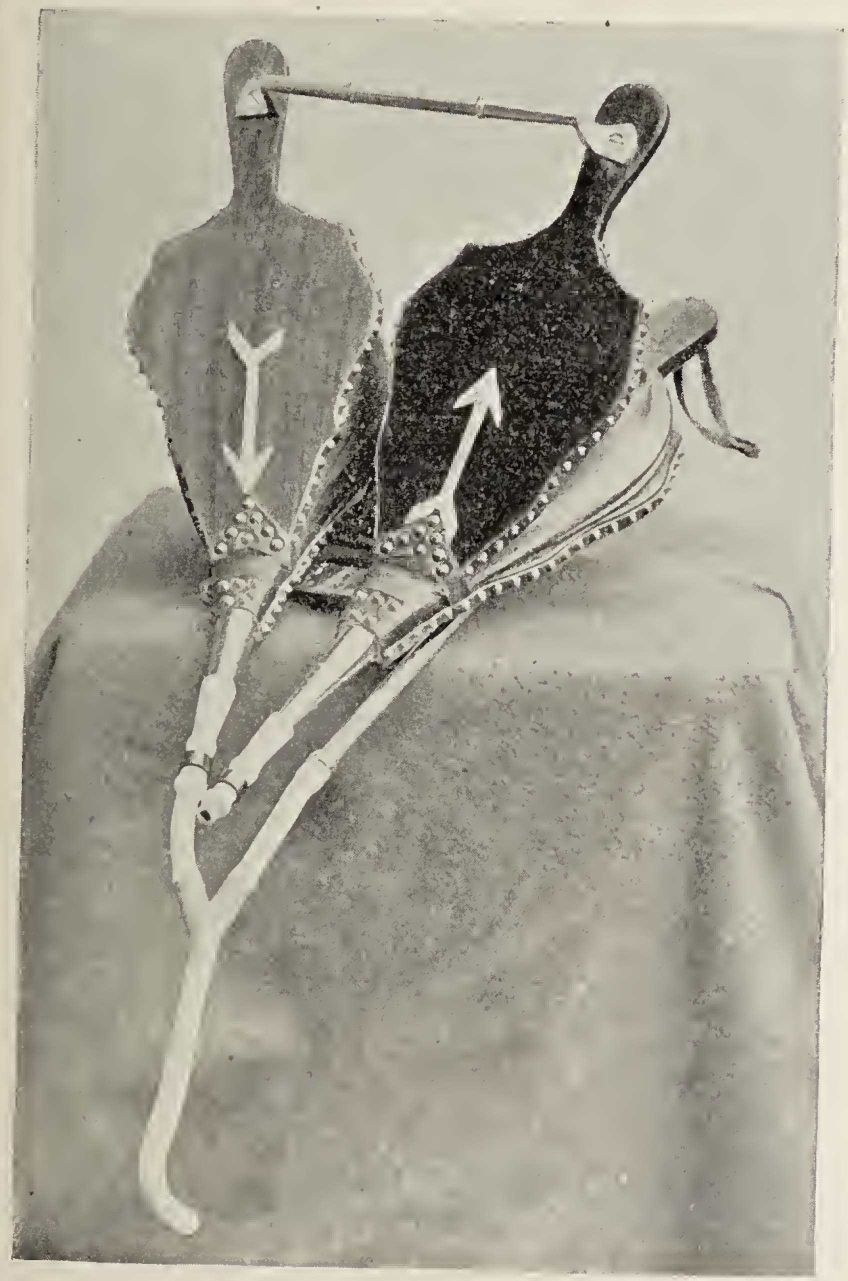

Fig. 1.

When we cease artificial respiration Nature may refuse to perform her duty, and we may be obliged to resort to the artificial method again. Sometimes it is necessary to carry on artificial respiration from ten to forty hours after life has been restored. During this time we may test Nature four or five times and find her not able to be self-sustaining; therefore we should keep up the artificial aid until that time arrives when Nature will perform her functions.

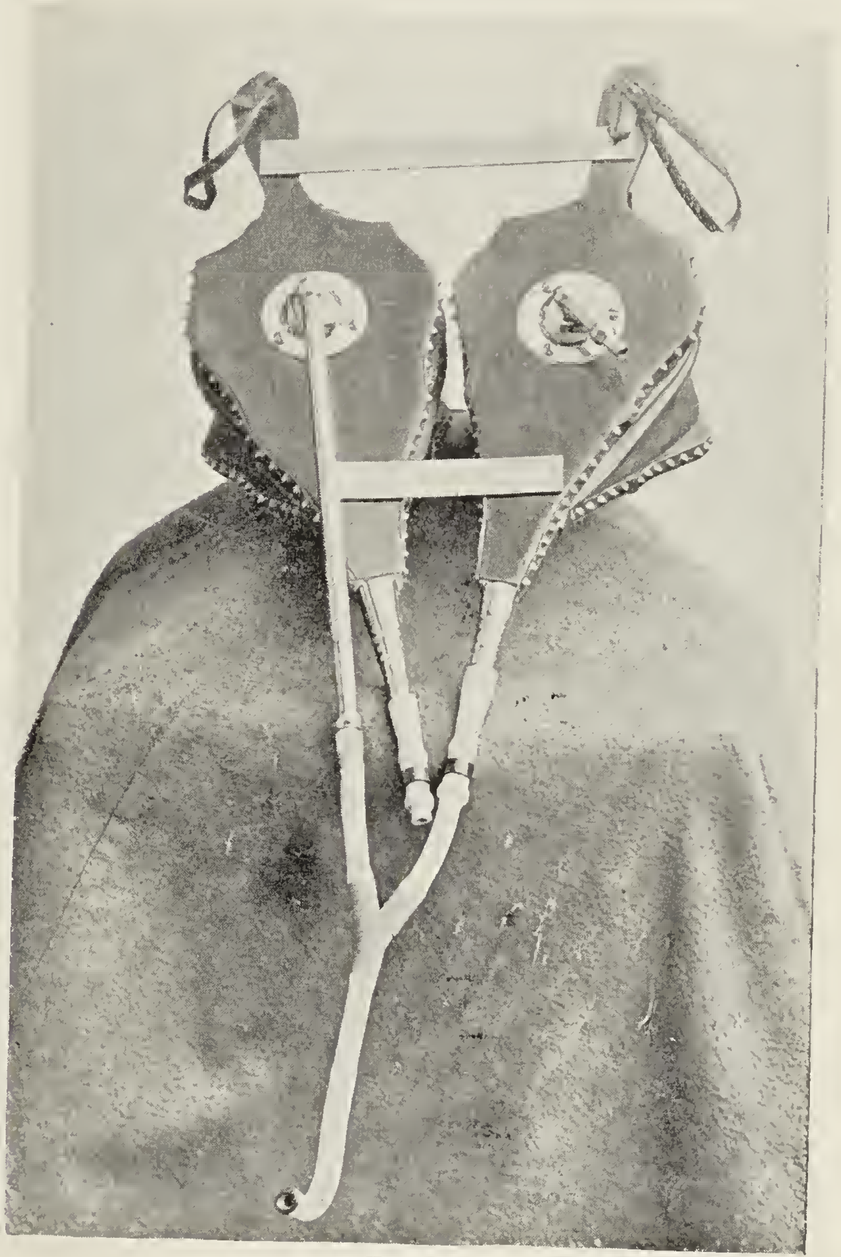

Fig. 2.

My apparatus is a simple double bellows, as shown in Figs. 1 and 2. It is so constructed that when the handle of the bellows is raised the air rushes from the patient's lungs into one apartment of the bellows; simultaneously the other apartment is filled with fresh air through a tube on the reverse side. This air is forced into the lungs by the compression of the handles.

The apparatus is designed to resuscitate persons who have undergone electrical shock, taken poison, been long immersed in water, been subjected to pressure on the center of respiration, or suffered from similar misadventures.

Forced respiration will restore suspended animation more expeditiously and more certainly than any other method now in use. This has been proved by Dr. George E. Fell, of Buffalo, N. Y., and others, during the past ten years.

324 Warren Street.

SOME POINTS IN THE THERAPEUTICS OF GOUT, THE URIC-ACID DIATHESIS, GRAVEL, ETC.*

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It is a common error to speak of gouty conditions as altogether the heritage from forefathers who belonged to the nobility. True, the disease was well known, as Lyman puts it, "among the debauched citizens of imperial Rome, and it has followed the transfer of luxury and dissipations from Italian soil to the wealthy capitals of France, Germany, Holland, England, and America." Indeed, we find it rapidly growing in frequency in our own section where brains and vim are becoming rewarded by comfortable incomes, and where these in turn are inducing sedentary and plethoric habits and indulgences in the luxuries of the table, the wine supper, the restaurant, or the club.

But we must not forget that there is the "poor man's gout." The disease may be acquired by laborers exposed to cold and damp, who have become accustomed to inordinate potations of heavy beer, taken with half-masticated luncheons spread over with mustard or other condiments of the cheap lunch rooms. It is said to be common among laborers of London employed to raise ballast from the bottom of the Thames who get into the habit of drinking a gallon or more of porter daily.

By some as yet unexplained pathogenesis, impregnation of the system with lead—as in plumbers and others—conduces to the uric-acid diathesis.

Among exciting causes of an attack recognized as gouty are excesses in eating highly seasoned meats; in wine drinking—especially champagne; excesses in venery; bodily fatigue; exposure to damp cold; prolonged mental exertions and anxieties. Thus it will be seen that gout is for the most part a disease that tells of dissipations. Sometimes, however, no exciting cause is recognizable—simply the acquired or hereditary predisposition is known.

The diagnostic signs and symptoms of a frank attack of gout need not detain us; they are classical. Nor need I describe cases of "irregular," "suppressed," "retrocedent," "latent gout," etc.; for that would lead us too far away from the practical intent of this paper. I may remark, however, that the manifestations of irregular gout are extremely diverse in seat and character—sometimes implicating the stomach; sometimes the liver, or the heart, or lungs, or kidneys, or muscular system, but oftenest of all, the nervous system.

Unquestionably, there is increase or diminution in the production of uric acid in the system in proportion as nutrition is perfect or imperfect. Without discussing the theories advanced in explanation of lithiasis, I indicate the line of my belief by stating that there are strong reasons for attributing to the liver the chief part in the formation of urea. So long as this organ can cope with supplies of nitrogenous food ingested, the surplus waste is carried off by the kidneys as soluble urea and chemically allied by-products; and the system is thus not burdened by an excess of uric acid. But if the quantity of nitrogenous food be greater than the liver can cope with, or if the urea be more than the kidneys, from any cause, can eliminate from the saturated blood serum, sodium bi-urate is precipitated little by little, and then we have the deposits or concretions of tophi, gravel, etc.

According to Roberts, when the serum of the blood is impregnated with sodium bi-urate to the extent of one part in six thousand, supersaturation is obtained; and precipitation is then, of course, imminent or actually occurs. In explanation of irregular gout, the same author supposes that in cases of slightly less impregnation of the blood with sodium bi-urate, the crystals of uratic deposition "fall in gentle sprinklings, sufficient perhaps to cause irritation . . . but not enough to cause downright inflammation." Thus many of the feelings known as *gouty symptoms* are accounted for.

I might add, as an incidental remark, that there is no evidence anywhere to sustain the assumption of some writers that uric acid in the system is a poison. It and its compounds are deleterious simply because of their sparing solubility in the bodily media. Its damage is done, therefore, simply by its sharp crystalline deposits from supersaturated blood serum, and its immediate danger is in accordance with the functions of the tissue in which the depositions occur. As for urea, the human body in health, according to Dr. Rose Bradford, contains from thirty to forty-five grains, "and may contain very much larger quantities than this without provoking any signs of vomiting." Urea can be taken into the stomach in drachm doses without harm.

Without entering into the discussion of the pathology of the gouty diathesis, it may be affirmed that the results are manifested by some condition as above spoken of, as irregular gout with its attendant symptoms, or else by the deposit of urate of sodium as tophi or concretions in various structures of the body, or else as renal or even as vesical calculi or gravel. It is to prevent the origination of the gouty or uric-acid diathesis, or to relieve the results alluded to, that the remainder of this paper will be limited.

Petrarch, impressed by the fact that those with the uric-acid diathesis had acquired it for the most part by habits of dissipation, or had fallen heirs to it from parents who had so indulged themselves, wrote: "If you wish to live free from gout, you should be poor, or live like a poor man." To sum up the whole principle involved in prevention of gout and its results *in those not having a hereditary predisposition*, the rule is, Be temperate in all things—with a conscience void of offense.

But gout, lithiasis, gravel, etc., are conditions which, once acquired, keep us reminded of the text, "Visiting the iniquity of the fathers upon the children unto the third and fourth generations." Those under the curse of this law have to do more than simply live temperate lives. They may be born with the uric-acid constitution, and indeed may have uric-acid deposits in their kidneys or bladder at birth. Such deposits have usually a colloidal covering, as of mucus.

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* Read before the Richmond Academy of Medicine and Surgery, February 12, 1895.

The indications of treatment are plainly to avoid catarrhal conditions of the urinary tract, use an abundance of milk and free potations of an alkaline water, and there is none better than the Buffalo lithia water of our own State. As the child grows up, he should be encouraged to outdoor exercise short of excess; his diet, in addition to the milk and water just mentioned, should be selected from such articles as fish, chicken, eggs, bread, cereals, fruits, and vegetables. Avoid overeating, especially highly seasoned articles, dark meats, fats, sugar, etc. Special care should be taken as to the adaptation of clothing suited to the weather or season. Flannel in the winter and gauze in the summer are undoubtedly beneficial in all cases where there is even a hereditary or an acquired predisposition to gout. Such clothing hurts no one; it benefits many.

As to radical measures, many of our forefathers learned to be afraid of active treatment in gout. Thus Parry (quoted by Aitken) reports two patients who attempted to cut short an acute fit of gout by plunging their feet into cold water. The relief was instant; but in a few hours both were dead of apoplexy. Sir Francis Burdett reports a similar case; Dr. Wood another; and thus report after report of the same kind might be added. The metastatic lung, heart, or brain symptoms, under such circumstances, all emphasize the presence of uricæmia. The urine, loaded with uric acid, may also irritate, or inflame, or even partially obliterate the uriniferous tubules, and then follows interstitial nephritis, or fatty metamorphosis of the kidneys, which impede the filtering functions of these organs. When such renal lesions as prevent proper elimination exist, we get from some medicines, not the therapeutic effect sought, but the toxic action of the drug employed. Hence the special necessity of great prudence in treating cases of gout, and of frequent painstaking uranalyses, not only for albumin, but also for extractives in the urine.

A great deal has been said in abuse of purgatives in gout, chronic or acute. Granville states that they are harmful " in direct proportion as they promote discharge of the fluids from the intestinal surface and leave the urine concentrated." Yet we must not forget that constipation is often an aggravating complication which demands relief. No agent possesses better effect as a laxative in lithæmic conditions than cascara sagrada—just enough of a good fluid extract to move the bowels freely once or twice in the twenty-four or thirty-six hours.

As for remedial agents that have been praised in the treatment of gout, uric-acid diathesis, and gravel, they are too numerous to enumerate. The *National Dispensatory* indexes over a hundred. Among the vaunted proprietary preparations, Reynolds's specific is said to owe its virtues to the selection of the colchicum used in its manufacture. Tongaline, which has such a long array of professional recommendations, contains the salicylates of sodium, pilocarpine, and colchicine, beside the antineuralgic tonga and extract of cimicifuga.

Colchicum is an old, well-tried, and faithful remedy if used in keeping with the teachings of experience and observation. We must not forget that its effect varies according to the idiosyncrasy of the individual. The emetocathartic effects are never required to assuage the pains or to allay the symptoms of " an attack of the gout." Indeed, purging is not desirable, and the vomiting effect is highly objectionable—it is dangerous. It is best to see how small a dose will secure the almost specific effect. Hence never begin with a dose exceeding twenty minims of the wine or tincture two or three times daily; and if twelve or fifteen minims twice a day—morning and night—will suffice, adopt that dose. Tincture of aconite, in one- or two-drop doses, combines well with the colchicum to mitigate the pains of the gouty.

Salicylate of sodium, in fifteen- to twenty-grain doses, in solution, three or four times in twenty-four hours, unquestionably possesses nearly specific virtues in gout, and is even more valuable than colchicum. It both prevents the formation of uric acid in the system and assists greatly in eliminating it when present in excess. It shows its virtues most decidedly during an " attack of gout," whether acute or chronic. It lessens the urgency of many of the most distressing symptoms of uratic deposits, or so-called metastases, especially those referable to the heart or lungs.

During the intervals between attacks much benefit will be derived from five- to eight-grain doses, three times daily, of potassium iodide, especially if there are kidney or vascular complications.

When neurotic troubles persist, as evidence of the presence of uric acid in the system, phosphate of sodium is of undoubted advantage, as Haig originally pointed out. It should be administered in solution during the intervals in doses of about a drachm three times daily.

As a tonic for debilitated states, arsenic acts better than iron. Two or three drops of Fowler's solution of potassium arsenite, well diluted, should be administered three times daily.

Nearly specific virtues have long been attributed to lithium preparations. And in the use of lithia waters I have great confidence, especially in dealing with lithæmia or uric-acid gravel. Bartholow remarks that " in the so-called uric-acid diathesis, in renal calculi composed of uric acid, and an irritable bladder from an excess of acid in the urine, the salts of lithium are useful. In case of a renal calculus, a very protracted use of *a well-diluted solution* is necessary."

This brings us to the consideration of alkaline diuretic waters as a treatment of chronic gout, of the uric-acid diathesis, and of gravel. All authorities agree as to the value of large potations of water in order to flush out the lithic-acid compounds from the system through those wonderful emunctories—the kidneys. Singular contrarieties of theoretical therapeutics are just here shown in certain books. Some acknowledge the virtues of well-diluted solutions of lithium salts, yet advocate the use of pure water. Why not get the benefit of both lithia salts, well diluted, and of a light table water by at once adopting some well-known and well-tested lithia water?

As to the choice of alkaline waters, there are like errors by some of the best text-book writers. Professor Osler, for instance, in his work on *Practice of Medicine*, writes: "Waters with the sodium salts should be avoided." And yet in the very sentence before this he says: "Potash water, Apollinaris, or Seltzer water should be taken freely." Every one knows that *sodium* salts are the chief saline constituents of both Apollinaris and Seltzer waters. There is nothing in *clinical* evidence to show that such waters should be avoided.

There is a prurience, it would seem, on the part of certain authors to recommend spas and springs of foreign countries. Why this is so I can not imagine. If, therefore, I limit the application of my further remarks to the Buffalo Lithia Springs of our own State, it is because they supply the waters with which all of us are most familiar in the treatment of the conditions under discussion, and because they have passed the ordeal of clinical tests and been found to accomplish the ends in view. That I have abundant authority for this statement, I will show by saying that the lamented Dr. Alfred L. Loomis, not long before his death, stated that "for the past four years" he had used Buffalo lithia water in the treatment of chronic interstitial nephritis occurring in gouty and rheumatic subjects with marked benefit. Dr. George R. Fowler, of Brooklyn, attending surgeon to St. Mary's Hospital, in an article in the *Reference Handbook*, speaks of the same water as potent in its effects on the digestive and excretory organs; hence as specially indicated in dyspepsia in, or consequent upon, accumulation and deposit of uric acid or its salts in the system. Dr. August Horn, associate professor of diseases of the skin in the Baltimore University, writes that he has used this water with most remarkable results in cases of skin diseases of a rheumatic and gouty diathesis. Professor John V. Shoemaker and Professor Frank Woodbury, both of the Medico-chirurgical College of Philadelphia, in articles in the *New York Medical Journal* and the *Journal of the American Medical Association* respectively, have noted most gratifying experiences after the free use of this water in the uric-acid diathesis, in lithæmic dyspepsias, etc. The late Dr. James L. Cabell and Dr. William B. Towles, both professors in the Medical Department of the University of Virginia, spoke of the relief following its use in lithæmic conditions as "very decided, no remedy at all comparable to it," etc. Dr. H. C. Wood, professor of therapeutics in the University of Pennsylvania, after its trial in some cases of inveterate chronic gout, states that it has afforded much satisfaction. The late Professor Harvey L. Byrd, of the Baltimore Medical College, urged that "it is unsurpassed if indeed equaled" in diseases depending upon or originating in the uric-acid diathesis. Dr. Charles B. Nancrede, professor of surgery in the University of Michigan, in the *International Encyclopædia of Surgery* speaks of it as "one of the best alkaline waters of this country" in the treatment of gouty affections. Dr. Allard Memminger, professor of chemistry in the Medical College of the State of South Carolina, regards it as "the surest and safest and most agreeable way" of removing from the system the pernicious derivative of uric acid. Dr. William A. Hammond, of Washington, Professor Græme M. Hammond, of New York, Professor Alexander B. Mott, of New York, Dr. Robert Battey, of Rome, Ga., and Dr. John Herbert Claiborne, of Petersburg, have all secured excellent results in gouty conditions from its use. It is not necessary to more than refer to the recorded favorable experiences of Professor Hunter McGuire, Professor James B. McCaw, Professor J. S. Wellford, Professor M. L. James, and other members of the Richmond Academy of Medicine and Surgery who have long used it in the treatment of the gouty or lithæmic conditions.

In view of this array of eminent names of able practitioners who have long used Buffalo lithia water with the utmost satisfaction in the treatment of gout and the allied morbid processes, and with records of successes just as wonderful as any of those stated in the advertising pamphlets of foreign springs and spas, it is strange that many American text-book authors prefer to dazzle the eye of the student with the names of Vichy, Carlsbad, Seltzer, Apollinaris, etc., without even mention of their American peer, so far as the treatment of gout, uric-acid diathesis, or gravel is concerned. I have never heard of a person with gout or any of the related morbid processes—acute or chronic—that was injured by the use of Buffalo lithia water; I do know of many cases in which it has proved beneficial. Can as much be said of all the vaunted foreign alkaline mineral waters?

Can uric-acid gravel in the kidneys or bladder be dissolved or sufficiently disintegrated to secure their expulsion? I affirm my own belief that many of them can be so reduced in size, or to sandy consistence, as to allow them to be washed out by the urine. If time permitted I could report cases in my own practice where calculous detritus has been washed out of the bladder apparently as the result of the use of very dilute solutions of lithium, such as are derived from natural lithia water. But there are enough cases on record—some of which are even more conclusive illustrations than any cases that have happened in my practice. Dr. Frank Woodbury has witnessed (*Jour. of the Amer. Med. Assoc.*, April 29, 1893), as the effect of daily drinking four or five glasses of Buffalo lithia water, the removal of gravel or uric-acid deposits. Dr. David G. Smith, of Oakley, Va., has known the free use of this water to be followed by the discharge of calculous matter through the urethra. Dr. W. C. Wile, of Danbury, Conn. (*New Eng. Med. Monthly*, February, 1890), noted a case in which this water produced a marvelous effect in the quantity of *débris* that it brought from the bladder. Dr. B. J. Weistling, of Middletown, Pa., passed a number of calculi as the result of its free potation. Dr. E. C. Laird, then of Haw River, N. C., and Dr. Frederick S. Whaley, formerly resident physician at Buffalo Lithia Springs (*Md. Med. Jour.*, Nov. 17, 1888), report the case of ex-Governor Holt, who passed some disintegrated uric acid calculi and sand under the use of the water. Dr. G. Halsted Boyland says "the solvent power of the water is unmistakable," and it so changes the diathesis as to prevent re-formation of red lithic acid and white phosphatic stone. Dr. J. D. Eggleston, of Worsham, Va., had a very gratifying experience in his own person of its solvent action of a uric-acid vesical calculus. Dr. Albert Goodwin, of Eufaula, Ala. (*N. Y. Med. Jour.*, Oct. 29, 1892), reports the case of Colonel L., who had well attested renal uric-acid calculi. After a few weeks' use of Buffalo lithia water a free discharge of calculi and sand commenced, which continued for three weeks, then diminished, and finally ceased. Dr. Samuel L. Hannon, of Washington, D. C. (*Med. News*, Nov. 8, 1890), reported two cases of vesical calculi relieved by freely drinking the water. Dr. J. Buxton Williams, of Oxford, N. C., noted a case of partial solution of kidney stone by this water—enough to let it pass into the bladder; here the stone was further dissolved and a calculus the size of a pea was expelled. He thinks that the water "has not only the power to prevent the formation of calculi in the kidney, but is also a sure and almost absolute solvent of stone after it enters the bladder." Dr. C. H. Davis, of Meriden, Conn. (*New Eng. Med. Monthly*, July, 1890), reported the case of Mr. Roys of that city, who, under the constant use of Buffalo lithia water for several weeks, passed as much as a teaspoonful of *débris* of a calculus that formerly was in one lump. Dr. John Herbert Claiborne, of Petersburg, Va., has reported two cases illustrating the satisfactory solvent action of Buffalo lithia water, one of which was reported in the *Virginia Medical Monthly* for December, 1889. Dr. F. S. Hope, Portsmouth, Va. (*Virginia Medical Monthly*, January, 1890), reported as remarkable a result in his own person. Dr. J. G. Wiltshire, lecturer in the Baltimore Medical College, has employed this water in a number of cases of lithic-acid infarctions, whether in the kidney or bladder, with the effect of slowly disintegrating the concretions. Dr. N. V. Wright, of the same city, has found it of great value in renal calculi. And thus I might go on adding experience after experience testifying to the fact that uric-acid and urate-of-sodium deposits or calculi can be more or less dissolved in the system and flushed out from the kidneys and bladder by the prolonged or continuous use of properly selected mineral springs water.

If time permitted, I could demonstrate to the satisfaction of practitioners, from available reports of cases, that certain lithia springs waters—such as those we have spoken so much about—are more serviceable in the treatment of gout, the uric acid diathesis, and gravel than simply pure, distilled water, as some writers recommend, and more beneficial than the products of the chemist in his attempt to isolate the supposed active principle that exists in such natural alkaline waters. A skeptical writer in a recent journal, in discussing the asserted solvent properties of these waters, while not questioning any of the various testimonials alluded to, maintains that the calculi reported to have been passed by the numerous persons under the action of lithia springs waters were mere coincidences. This contention, in view of the clinical evidences presented, is about as unreasonable as it would be to account for the purgation following the administration of Epsom salts as a coincidence.

In the effort to reconcile facts and theories to such a skeptical view of professional experiences and observations, it is better to suppose, with a gifted author and able physician of our State, that "in Nature's alembic there has been some subtle solvent evolved—too subtle to be caught by our coarse reagents, which make this wonderful disintegration. 'There are more things in heaven and earth than are dreamt of in our philosophy'; and his is a short creed who believes only what he can prove or explain."

THE SURGICAL INDICATIONS IN TRIGEMINAL NEURALGIA.*

By J. C. CLARK, M.D.,
OLEAN, N. Y.

The surgical indications in trigeminal neuralgia have within the past few years been slowly but surely developing. There has been a steady drift from the continued use of powerful sedatives, the reckless removal of sound and useful teeth, and the contracting of drug habits. All must give way before the successful results of surgical procedure. The methods and results of surgical interference in trigeminal neuralgia, tic douloureux, or epileptiform neuralgia, where not due to disease of the brain, as reported by the following-named surgeons, are as follows:

Dr. Abbe, December, 1888: The second division of the fifth nerve removed as far as the foramen rotundum and Meckel's ganglion broken up.

Dr. Glass, Utica, 1889: Inferior dental divided by incision made inside the mouth.

Dr. Magruder, of Charlotteville, Tenn., 1889: Two cases. Second division of fifth nerve drawn down and cut off. Inferior dental branch divided after trephining ramus of inferior maxilla.

Dr. Wyeth, 1891: Two cases. Second division divided and proximal end of the nerve twisted.

Dr. Lange, 1891 and 1892: Two cases. Second division cut, bony canal broken down, and nerve destroyed.

Dr. Hartley, January, 1892: Intracranial neurectomy. Second and third divisions of the fifth nerve divided outside dura mater after trephining in left temporal region.

Dr. Tiffany, Baltimore, November, 1893: Four cases. Intracranial neurectomy, dividing second and third divisions of the fifth nerve, employing same method as Dr. Hartley.

These several gentlemen indorse these operative procedures, and report in each and every instance rapid recoveries, permanent relief from pain, decided improvement in the patient's general health, and no special permanent interference of function in parts supplied by the divided nerves.

I desire to add one case to the above list:

A man, aged fifty-five years, woodsman. Neuralgia of first and second divisions of fifth nerve upon left side. The pain commenced in 1890 with lightning paroxysms fifteen or twenty times daily, lasting from thirty to sixty seconds. Sometimes the pain would cease for six hours. These pains started and continued in the second division of the fifth nerve for three years, affecting smell and sight upon the left side of the face. After this, the first division became involved and the pain was continuous. Seven teeth in the left upper jaw were removed in 1893, and two months later the remaining four in the lower jaw, with no cessation of the pain, and during this time all the known remedies were used, the patient finally securing his only relief by frequent resorts to half a grain of morphine. His appearance in May, 1894, was a typical picture of pain and despair. The left eyelids congested, swollen, and lacrymal fluid continually dripping from the corner of the eye.

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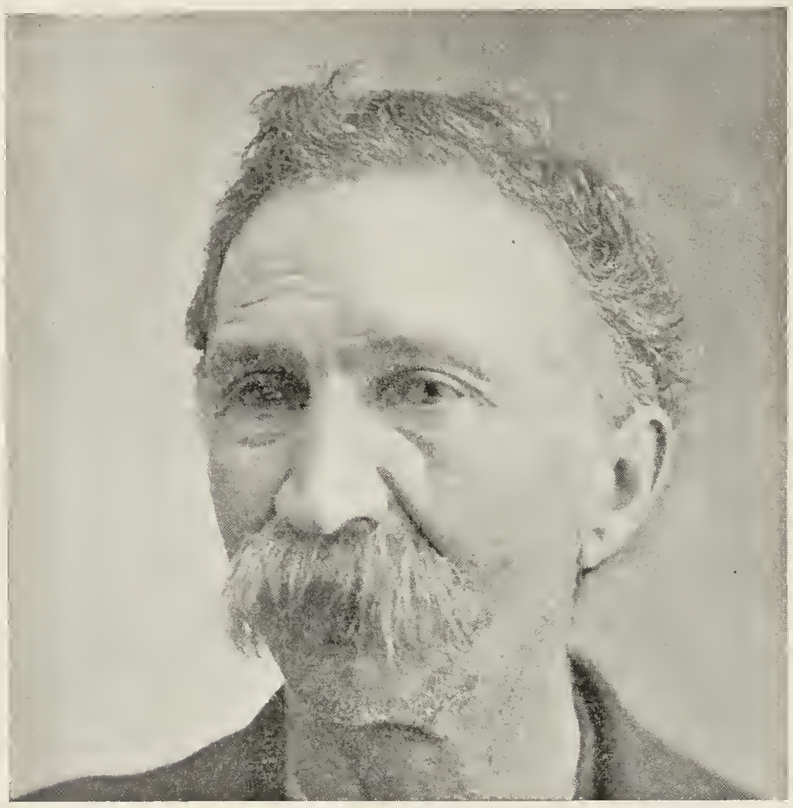
* Read before the Medical Society of the State of New York at its eighty-ninth annual meeting.



Operation performed in May, 1894, under chloroform anæsthesia. Infra-orbital and supra-orbital foramen located, incisions made, and nerves pulled up with an aneurysm needle and severed. The small, round tip of a Paquelin cautery, at nearly white heat, was then pushed upward and backward through the infra-orbital foramen and back half an inch in the canal, destroying the nerve. Patient drove home a couple of hours later and from that day to this has been perfectly free from pain and continues his outdoor work. Wound healed without feature. There is slight anæsthesia of the left ala of the nose and over the eyebrow.

Neuralgia of neurasthenics located in different parts of the body can be materially helped by the rubber adhesive plaster—viz., intercostal, by a broad strip applied exactly as to a fractured rib. Ankle and knee joints can be strapped with much moral if not actual effect.

In neuralgia occurring in the end of the limb after amputation, care should be taken to distinguish between the conical stump and a neuritis which can be cured by dissecting out the nerve instead of reamputation, particularly in the lower extremity.

ELECTRICITY IN MEDICINE

FROM A MODERN STANDPOINT.[*]

By WILLIAM JAMES MORTON, M. D.,

PROFESSOR OF ELECTROTHERAPEUTICS
AND OF THE DISEASES OF THE MIND AND NERVOUS SYSTEM
AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

INTRODUCTORY.

In accepting the invitation of the president of this society to take charge of presenting this discussion before you, as well as to open and take part in it, I welcomed the opportunity as one which would invite your earnest attention.

The Era of Electricity.—There are times in the history of the world—in the history of medicine—when certain subjects are rife; they come upon us in waves and we are swept along in the stream.

Such a period is now with us as regards electricity. We have had the era of steam, of the subdivisions of electricity—telegraphy and telephoning—the era of vaccination, of anæsthetics, of antiseptic surgery; we are now well along in the era of bacteriology, and next the era of electricity is forcing itself to attention, not alone in the general affairs of men but also in the practice of medicine.

We physicians can not, if we strive to do so, keep out of its influence.

Electricity has revolutionized chemistry long since—the fundamental laws of chemistry and electricity are but two aspects of one and the same thing; it has revolutionized physics—for light, or the science of optics, and the science of electricity are now regarded as one and the same science; it is now revolutionizing the industries and the habits of mankind.

We do not for a minute think that electricity will revolutionize medicine, and not even the therapeutics of medicine; for medicine is a complex science, built upon many foundations where electricity is not directly involved, and therapeutics seeks aid from every quarter, and electricity is but one of these aids.

But we do think that in this, the electric age, the physician alone of educated men can not remain isolated from the general advance, can not lag behind in this great branch of scientific thought and practice, for it is he who, in the race for the good and the happiness of the human kind, has ever kept in the vanguard of information in the physical sciences even at great sacrifices to his personal comfort and without remuneration.

Does the physician ask for evidences of this electrical era, he has but to look about him.

The wheels of the machine shops are beginning to turn by electric motors; the wheels of the street cars now turn, and ere long the wheels on the great trunk lines will turn by the same motive power. Electricity is supplanting steam.

Our houses and cities are lighted by electricity, and soon our homes will be warmed by the same agency and our cooking done.

Electricity, either by electrolyzing sea water or in the production of ozone, is already the most available and powerful disinfectant and germicide in the world.

It is no wild assumption to say that the health of the closed ranks of our civilization in cities and towns may at no distant date be maintained by electric purification.

To obtain electricity to do these manifold works mighty dynamo machines of five thousand horse power each are already constructed, and, to secure the power to transform into electrical energy, the mountain streams and the waterfalls the country over are being corraled.

Niagara Falls itself has been tapped to yield a hundred thousand horse power to be conveyed in the shape of electric energy along wires to distant cities.

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[*] A contribution to a discussion before the Medical Society of the State of New York at its eighty-ninth annual meeting.

Relation of the Physician and the Electrical Engineer.—How, then, shall the physician keep pace with these strides in such a manner that medical science shall not suffer? Obviously, by but one method, that of informing himself as to the fundamental laws of electricity and their applications in practice.

To do the first, he must study electrophysics, and to study this he must turn to the work of the electrical engineer. The two branches to a certain extent blend.

Already the electrical engineer all over the world is invading the domain of physiology; he is studying the physiological as well as the physical effects of the currents he handles; in fact, are the former not dependent upon the latter? In like manner the physician is turning to the electrical engineer. Here, in this union, is the genesis of modern electrotherapeutics. But here, you say, is new work for the overburdened physician. True, and it can not be helped.

Already medical science is by far too comprehensive for one average man to grasp, and hence its subdivision into specialties. Must electrotherapeutics then be narrowed down to specialists? I reply, its advanced and best work must certainly be in such hands, but there still remain a large number of specific procedures of great importance in medicine and surgery which may be perfectly grasped and aptly applied by the general practitioner. And the number of such procedures will more and more increase as the medical schools of the land adopt or perfect teaching of elementary electrophysics in their curriculum, and as the newly trained men spread outward to their work. But, in conclusion, you ask, is it worth our while to devote attention to electricity in medicine? On the one hand, it is condemned; on the other, exorbitantly praised. Who is right? We have in the first place shown that if the physician does not take up this question he will be hopelessly behindhand in a branch of science which now closely interests the entire civilized world, and there can be no doubt that in not taking it up he may be charged with neglecting the interests of his patients.

Furthermore, he can not decide upon the merits of the uses of electricity in medicine if he is in entire ignorance of the subject. The true position to-day is that of conservatism—a conservatism based upon knowledge of the subject, and not that pseudo-conservatism based upon skepticism; for a blind and unreasoning skepticism has no place in science any more than an equally blind faith.

There can be no doubt that in selected cases, and with skilled use, electricity can render to medical practice important aid, now unavailable by reason of the inadequate attention paid to the subject. This aid I do not urge as a specialist, nor as an "electrician" so called, for I and others engaged in the study of the modern uses of electricity in medicine claim only the title of physician, of physicians who are free to use and do use all other remedies and measures they see fit, and who in using electricity regard it but as one out of many means whereby disease may be palliated or cured and humanity benefited.

To show you that it is worth while to heed the warnings of the times, and to study the use of electricity in medicine, is the guiding motive which has induced me to invite your attention to the subject.

ELECTROPHYSIOLOGY.

ELECTROPHYSIOLOGY comprises—

1st. The manifestation of electric phenomena by the living organism: animal electricity; electrogenesis.

2d. The reaction of the living organism to the electric excitant.

I. ANIMAL ELECTRICITY; ELECTROGENESIS.—The time will, no doubt, arrive when it will be recognized that the science of biology and that of chemistry and of electricity are so interwoven and interdependent that they must be considered together in order to arrive at any adequate conception of the processes of life. Certain it is that the development of electromotive force and, as a consequence, of currents of electricity has long become a familiar phenomenon of physiological action.

Electrical currents characteristic of the muscles, the nerves, and the glands of uninjured animal tissues are now generally accepted. This view in no sense postulates that "electricity is life," but merely that electricity, like heat for instance, is both a product and an essential accompaniment of the vital processes. It would serve no practical purpose to here present *in extenso* the received views relating to these currents of electricity characteristic of living beings, for, beyond the fact of their existence, electrophysiology furnishes us with but little information; their polarity and consequent directions of flow and their causes are not yet established. Animal electric currents were discovered by Galvani, studied by von Humboldt and Matteucci, worked out in detail by Du Bois-Reymond, Engelman, Hermann, and others, while within recent years Tarchanoff has demonstrated beyond question that in the skin of man an electric current is set up by excitation of organs of special sense or by simple mental activity. Tickling of the skin sets up within a few seconds a cutaneous current, rising rapidly to a maximum, and persisting several minutes after the excitation is over; the parts of the skin having the greatest number of glands are negative to those parts having a less number. The same result is produced by other forms of excitation of the skin, such as the electric, the thermal, or those of pain, or by a bright light falling upon the eye, a loud noise, or a strong odor, also by the mental effort of solving arithmetical problems or by the influence of emotions. The causation of these currents has by some been attributed to chemical activity, by others to changes of form of tissue elements. When the exact manner of their genesis in our bodies shall have become established by the future electrophysiologist it will become of great importance to electrotherapy, for by aid of the ordinary battery current we may be able to annul or enhance the activity of the tissue processes which produce them. In a paper * read before the American Electrotherapeutic Association in 1892, the writer endeavored to solve this latter question and thus to introduce greater accuracy in electrotherapeutic procedures by advancing the two following propositions, based upon a generally accepted conclusion that the chemical processes of metabolism are the source of the currents, and that therefore—

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* *Medical Record*, September 3, 1892.

1. Catabolism, or destructive metamorphosis of tissue (comparing the catabolic process to the zinc of a galvanic battery), must inevitably be electropositive, or, what amounts to the same thing, must present the sign of negativity.

2. That admitting this to be true, every focus or area of tissue undergoing katabolic or destructive chemical changes may have applied to it by an external galvanic battery—

a. The positive pole, which will *augment* the destructive or catabolic exchanges.

b. The negative pole, which will *annul* the destructive or catabolic exchanges.

If these propositions are sustained in practice we have, in certain cases, but to determine the electric sign of a certain given diseased part to be able to apply to that part that pole of the galvanic battery which shall either retard or hasten the chemical tissue changes underlying and constituting the morbid process. I have tested many instances of catabolism and found them to present the negative sign, and therefore to be, as I have maintained, electropositive in their nature, and am now collecting the data to demonstrate the second part of the theory—namely, that this fact may be of use as a therapeutic guide in the administration of electricity. As to the first part of the theory propounded, that catabolism or the destructive processes of life present the sign of negativity, I am glad to find that it has been adopted by Biedermann in a paper read last year, based upon investigations into the nature of the electrical currents developed by the glands of the body. "Biedermann points out* that in the gland cell we have a structure pre-eminently liable to variations from the balance between constructive and destructive events. That part of the protoplasm of the cell engaged in the elaboration of the secretory products, though ordinarily the seat of an excess of catabolic over anabolic activity, must at the same time be in a highly unstable state, and liable under certain conditions to an overthrow of balance to the opposite side. The electrical sign of a part in which catabolism is in excess of anabolism is negative as contrasted with that of a balanced part; more negative still to a part where anabolism is in excess of catabolism, and of course *vice versa* as regards positivity. Thus, it is supposed, differences of potential may be originated in the cell as the result of its vital processes, and the cell current will depend, as regards its direction, upon the predominance of either one or the other processes, and the relation of the resultant condition to that of the rest of the protoplasm. The act of production of the secretion by the cell is one in which catabolic action is in the ascendant, so that part of the cell in which the secretion is occurring should be negative to the deeper parts with a resultant ingoing current when put in circuit; and upon this hypothesis Biedermann explains the ingoing 'current of rest' as being the electrical expression of a continuous and predominantly katabolic activity."

In a recent number of *Science Progress* Mr. E. Waymouth Reid reviews the various theories of animal currents, and is inclined to accept what he terms the Biedermann theory, unaware, doubtless, that this very theory had been published by the writer and very exhaustively worked out in the article alluded to, published in the *Medical Record*, September 3, 1892, entitled A Possible Electric Polarity of Metabolism, and its Relations to Electrotherapeutics and Electrophysiology. It is certain that when more definite knowledge of animal currents is afforded by electrophysiology electrotherapeutics will advance equally and by positive steps.

II. The Reaction of the Living Organism to the Electric Excitant.—Of all excitants to living tissue, there is none to which it is more susceptible, compatible with the preservation of its structural integrity, than to the electric.

There is, furthermore, no known excitant which may safely permeate to every recess of tissue as electricity will by known physical laws of current conduction.

From both points of view electricity is therefore qualified to excite, independent of volition, the irritability of all tissues.

The far-reaching effects of these statements are realized when we recall that fully nine tenths of the soft parts of the body are composed of contractile tissue.

The time at my disposal permits of but the briefest allusion to the physiological reactions.

They may be classed, some of them doubtless overlapping, as—

1. *Protoplasmic reaction.*
2. *Nerve reaction.*
    1. Sensory . .
        - *a.* Electrotonus.
        - *b.* Pain.
        - *c.* Ingoing impressions.
    2. Motor . . . . Muscular contraction.
    3. Vaso-motor . . . Circulatory changes.
    4. Trophic . . . . . . Nutritional changes.
    5. Reflex . . . . Reflex action.
    6. Special sense.
3. *Muscle reaction.* Neuro-muscular mechanism.

1. *Protoplasmic Reaction.*—Movements of protoplasm, both vegetable and animal, are caused by the electric stimulus.

In unicellular organisms, like the *Amœba diffluens* and the *Arcella vulgaris*, the spherical shape is assumed; as regards the vibratory cilia, a change occurs both in the frequency and in the amplitude of the vibrations.

In the human body the irritability and contraction of protoplasm and its modifications afford the basis of familiar nerve and muscle reactions, as well as an available explanation of other reactions still novel and unexplored.

When the protoplasm is at peace the organism is at peace, and the feeling of health is the result.

2. *Nerve Reaction.*—That nerve and muscle tissue are stimulated by variations in current strength is the most familiar fact of electrophysiology. To trace out the modifica-

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* Quoted from the *Electrical Review*, London, December 28, 1894, p. 772.

tions of function of a living organism caused by stimulating and setting into increased activity the sensory, motor, vaso-motor, reflex, and trophic nerves would lead us over an extensive department of physiology, for, in the case of the sensory nerves, the great centers—cortex, basal, and spinal ganglia—have their nutrition, function, and even their structure altered by ingoing impressions from the periphery (Hodge); in the case of the motor nerves, both the great mass of the skeletal muscles, as well as organs and tissue provided with even the least muscular fiber, are caused to contract with corresponding tissue and circulatory changes; in the case of the vaso-motor nerves, circulatory and nutritional results are brought about; and, finally, in the case of the trophic nerves, ending in the tissues where nutrition solely is concerned, modern research has demonstrated that a profound increase in metabolism is established.

I would not be understood to say that every perfunctory or ignorant administration of electricity will accomplish all of these results, but rather that in the hands of one fairly well informed such results may be obtained. The merest tyro may secure the muscular contraction effects, but many of the others require skill, knowledge, and, in some instances, machinery, for the production of forms of electricity not generally available.

Specific Action of Electricity on Nerves and Muscles.—A galvanic, faradaic, or franklinic excitation of a motor nerve removed from the body, yet left in connection with its muscle, causes an energetic contraction of the muscles.

The excitation may be direct or indirect; it is direct when applied to the muscle itself; indirect, when applied to the nerve. The excitation may be by the bipolar or the unipolar method; when bipolar, both electrodes act upon the nerve or muscle; when unipolar, one electrode—the active one—is applied to the nerve or muscle, while the other electrode—the indifferent one—is applied at some remote situation. These methods apply also to actual practice. The excitation produced indirectly (on the nerve) produces the strongest contraction; all the muscular fibers connected with the nerve respond. A powerful current is required to produce a contraction (direct) of muscular fiber irrespective of its nerve supply.

Physiological Tetanus and Single Contraction.—These are the two possible modes of muscular contraction.

Each requires that a variation of electromotive force be employed. For the single contraction, a single electric impulse, like the "make" or the "break" of the galvanic current, or the single impulse from an induction coil or a spark, will suffice; for tetanus, a succession of electrical impulses, usually secured by the use of the induction coil, is required.

Up to about twenty electrical impulses a second, only a single contraction of a muscle occurs; beyond that number the muscle fails to relax, and tetanus ensues.

The rate of the number of impulses a second is termed the "frequency" of the current.

D'Arsonval has shown that at a frequency of twenty-five hundred impulses a second a maximum strength of contraction is reached which is sustained up to five thousand a second, and diminishes from that point onward to ten thousand a second, when no contraction effect whatever is produced. But, though the motor (or sensory) nerves are not affected at these high rates, the trophic nerves are, as will be shown later on. A constant or galvanic current passing through a muscle produces no contraction, nor is contraction evoked by the same current traversing the motor nerve.

Electrotonus.—Though no muscular contraction is called forth by the passage of a constant current through a nerve or muscle, nevertheless it is otherwise modified, for its irritability is altered; that part of the nerve submitted to the influence of the positive pole has its irritability diminished; that submitted to the negative pole has it augmented.

The former—anodal diminution of irritability—is termed an electrotonus; the latter—cathodal exaltation of irritability—is termed catelectrotonus.

A practical point seldom noted is that, if the galvanic current producing these effects be interrupted, the states of irritability referred to are reversed—namely, the anodal region exhibits exaltation, and the cathodal diminution irritability.

These principles are applied in practice.

The Law of the Order of Contractions.—This law, called Pflüger's law, expresses the facts relative to the respective powers of a positive or a negative pole and of an opening or a closing of the circuit to cause contractions of muscles.

The main feature of the law is that at the closure of a constant current the strongest contraction takes place at the cathode or negative pole, and at the opening of the circuit the strongest contraction takes place at the anode or positive pole.

Expressed in symbols, where C stands for cathode, closure, and contraction, A for anode, and O for opening, we may write the sequence in terms of relative strength as follows:

$$CCC > ACC > AOC > COC,$$

a formula which I often recall by aid of a mnemonic—viz., C A A C giving the first letters and adding C O, making C A A C C O, to decide upon the order of the cathode and anode in the second and third members.

It should, however, be noted that galvanic alternatives will give stronger contractions than any other proceeding of opening and closing the circuit. This law finds its most important bearing as regards the reaction of degeneration of Erb where, in the degenerating muscle, upon closure the anode causes a stronger contraction than the cathode, an evident reversal of the normal formula given.

Effects upon Metabolism; Nutritional Effects.—To excite a nerve, to cause muscles to contract, to produce sedation of nerves (anelectrotonus), or sedation of muscular excitability, comprises a large portion of the physiological effects usually expected of percutaneous electrical applications; but there remains a further effect of a certain class of electrical currents far surpassing in importance any of those named.

We refer to the decisive effect upon the metabolism of the organism set up by high frequency, high potential currents, emphasized by D'Arsonval by a series of decisive laboratory experiments.

In 1881 the writer devised a mechanism consisting of a Holtz or influence machine and Leyden jars, by means of which a new order of current was established—namely, condenser currents in rapid discharge—and termed his current the static induced current. This current was not a single condenser discharge, but a regulated series of such discharges.

At that time, and later on in a publication in 1891—both publications prior to any other describing a current of this nature—he called attention to the peculiar physiological effects produced by his current.

In 1892 and subsequently, Nicola Tesla, by aid of this same mechanism and instruments of far greater power and precision, developed the wonderful physical effects which are now known as the "Tesla effects."

Professor Elihu Thompson also took part in this development, and Professor D'Arsonval, of Paris, addressed himself assiduously and brilliantly to the development of the physiological effects.

Thus sprung up the high frequency, high potential current of these days. The static machine as a feeder to the Leyden jars has for the production of the physical effects been replaced by specially constructed dynamo machines or induction coils, and the static induced current has been transformed by "step-up" or "step-down" transformers; but its principle still remains the same; it is essentially and always a condenser current, produced by a stream of sparks from discharging condensers from whose external armatures is taken a current characterized by its extraordinary high electromotive force and by its oscillatory or alternating nature.

The physiological effects of this current, the static induced current, when human beings are submitted to its influence, are remarkable.

As we have seen, alternations beyond ten thousand per second produce no contraction effect upon nerve or muscle.

The high frequency currents here referred to run easily up to say one hundred thousand alternations per second and a voltage of one hundred thousand, and produce no effect upon motor or sensory nerves; no appreciable sensations are produced and yet there is a profound effect upon nutrition; the elimination of urea, of carbonic acid, and of water is increased from forty to fifty per cent., while, correspondingly, the uric acid and other incomplete products of tissue combustion are diminished.

In short, the consumption of oxygen is increased, and the sum total of the complete end products of vital functions is increased at the same time that the incomplete products of combustion are diminished. That a powerful current is traversing the body is shown by placing an electric lamp in circuit with the patient's body and noting that it lights up though no sensations of the passing current are felt.

The watts, or horse power, or total electric energy required to light such a lamp would, if it traversed the body at lower rates of alternation, cause death.

Why it is that currents of such enormous voltage and frequency are harmless to the subject submitted to their action is as yet unknown. Various explanations have been offered; among these the most plausible is that there is actually no horse power in such currents; but, on the other hand, if this be so, why is it that the lamps held in the hands and in circuit with the body are rendered incandescent, for the current sufficient to produce this incandescence would, as has been said, ordinarily prove fatal?

This problem remains to be solved.

The practical point to which I would here call your attention is that the static or influence machine, in all of its manifestations as used in treatment—spark, spray, douche, and static induced—is essentially a high-frequency, high-potential current, and it is a source of gratification to the writer, who in 1880 introduced the practice of using these machines into this country, and who has long advocated their efficiency in medical practice, to find that his faith was well founded, though the scientific explanations were not at that time discovered and enunciated, and are indeed not yet fully furnished us.

It is evident that currents of this nature have a great future before them in all diseases characterized by incomplete combustion processes and malnutrition, like, for instance, rheumatism, gout, anæmia, and chlorosis, neurasthenia, melancholia, etc.

To take a single concrete instance, who would not prefer to cure a case of rheumatism by curtailing and rendering impossible the formation of uric acid by carrying its oxidization on to urea, rather than to render the uric acid soluble by present means while not in any wise diminishing its production?

In such directions as these, gentlemen, electrophysiology and electrotherapeutics are tending.

(*To be concluded.*)

GLUCOSE AND CANE SUGAR AS FOODS.*

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Glucose, either in the pure state, as invert sugar, or mixed with cane sugar, is a daily article of diet. It is an important question to determine whether there is a difference in the effects of this sugar and cane sugar. Since glucose has become a cheap commercial article, it has found numerous uses in the arts and as an article of diet. Several foreign chemists, notably Nessler, Schmitz, and Landbeck, have professed to have found in commercial glucose an unfermentable substance having injurious effects.

The experiment has been tried of adding glucose to grape juice before fermenting, to fortify the wine to be produced. This was a failure because of the disagreeable after-effects from drinking the wine.

A few years ago enormous quantities were used in the manufacture of beers. Several expert brewers have informed the writer that such beers always have a bad after-effect. In 1882 a committee of American chemists examined the question with great care, and reported that there was no evidence before the committee that maize or starch sugar (glucose), either in its normal condition or fermented, has any deleterious effect upon the system, even if taken in large quantities. While the ability and standing of these chemists can not be questioned, we may ask what experiments were made by them as to the effects of the long-continued use of glucose. In discussing the effects of an article of diet that is to be used by all the individuals of a community, the sanitarian is obliged to observe the effect upon all classes. Investigating committees are apt to select only healthy subjects for such observations, which may lead to conclusions not consistent with the truth when all classes are considered.

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* Read before the New York Section of the American Chemical Society, January 12, 1895.

The physician or the sanitary authority is bound to protect the weak and diseased, as well as the robust and sound. This point is frequently overlooked. The real question should be, Are there any considerable number of persons seriously affected by this article of food, and who should be warned against its free use?

Commercial glucose is a mixture of dextrose, maltose, dextrin, and traces of other substances, in varying proportions in different samples. The chief ingredient is dextrose (grape sugar or diabetic sugar). This sugar is not furnished in large quantities by many natural sources of food, and is prepared in the human body only in the intestine from cane sugar taken with food or during the act of absorption of this sugar or the maltose formed by the digestive ferments upon starch. In other words, it is prepared by the intestinal mucous membrane in the act of removing the maltose and cane sugar from the digestive tube. Except in a few substances, like honey, raisins, and figs, vegetable foods contain very small quantities of dextrose. The principal forms in which sugar is presented to the stomach by Nature's foods are either milk sugar or cane sugar. These sugars are very different in properties from dextrose, and require digestion before they can be used in the body. They are not capable of assimilation as such, and must be converted into a glucose before they can be used, and this is only done in the intestine. From this it would seem that it was not intended that dextrose and levulose should be taken in any considerable amount in our food. They are not natural but artificial foods.

Commercial glucose as prepared by the action of sulphuric acid upon starch is not a physiological product, and is different from that produced by the digestive process. Glucose checks the action of the diastase of the saliva as well as the pepsin of the gastric juice. The same can be said of cane sugar in a less degree. Glucose undergoes both the lactic and alcoholic fermentations with great readiness and leads to gastric disturbances, besides the above-mentioned effect in causing salivary indigestion.

These effects are more marked in persons who are subjects of gastric or gastro-duodenal catarrh. Catarrhal mucus seems to cause the glucose to undergo this change with astonishing rapidity. The lactic-acid hyperacidity increases the irritation of the mucous membrane and thus aggravates the gastric catarrh. The excessive and continual use of cane sugar will often cause the same phenomena, but not so readily. The effects of a continual use of large quantities of sugars, especially of glucose or invert sugar, and to a less degree cane sugar, are general malaise, defective nutrition, anæmia, salivary and gastric indigestion, and gastric catarrh. These effects for some reason have appeared to me to be more common in the young and in girls than in adults and boys, probably because of the greater indulgence of the former.

Glucose is taken in the form of candies, in the form of invert sugar—a mixture of dextrose and levulose—in cooked acid fruits, jellies, preserves, and some forms of cake and pies. It is a well-known fact that cane sugar is inverted by heating it in presence of acids. This change takes place when sweetened fruits are cooked. Every physician meets persons who can eat raw apples without stint and without after-distress, while they can not eat apple sauce or apple pie without distressing after-effects. These same persons can drink lemon juice and water, but are sickened by lemonade or lemon pie. It is not a rare thing to find persons who can eat rock candy or maple sugar with no unpleasant after-effects, but the same amount of ordinary glucose candy will cause distress or produce what is usually known as "bilious vomiting."

The writer has known several cases of death produced in this way, and in every case it was with candy containing glucose. He has never seen a case of serious illness from eating pure cane-sugar candy, although such cases might possibly occur. Attacks of acute gastric catarrh, or acute indigestion with fever and vomiting, are more commonly met with as the result of over-indulgence in sweets.

The writer has notes of at least two cases of recurring chorea, one in a girl and the other in a boy, which recovered almost without medication by restricting the diet to articles containing no sugar. The boy had the disease for two years in spite of medication, and recovered by restricted diet and the use of pepsin and hydrochloric acid, with laxatives.

A young lady who represented that she had vomited three times a day for a year, and who had almost lived on home-made cake, recovered on a restricted diet and a mineral acid after meals. The vomiting returned whenever she ate cake, and ceased when all cooked sugar was withheld, and without medication of any kind.

This young lady illustrated in a marked degree a remote effect of the sugary diet which is often seen—viz., a catarrhal inflammation of the genito-urinary organs and of the throat. I have attributed this remote effect to the uric acid produced by the disturbances of nutrition. In the throat it may be due to an extension upward of the catarrh of the stomach produced by the excessive use of these sugars. The author can produce in himself a severe headache, preceded by marked malaise, at any time by eating apple sauce cooked with sugar, while he can eat raw apples without any such effect. He can eat currants or any of the small fruits with sugar, with no effect; while the same fruits, when cooked with sugar, produce the headache, etc. Commercial glucose produces the same effect. He has never found sugar in his urine. I can conceive of no explanation of these phenomena, except that it is the invert sugar that produces the trouble.

I have so often made the experiment and have so often seen the same result, both in myself and in others, that I am convinced of the difference in effect between raw cane sugar and cane sugar cooked with acid fruits.

Hydrochloric or phosphoric acid seems to materially lessen these effects, probably by checking fermentation in the stomach.

The following facts may, in part at least, explain why we might expect that dextrose or invert sugar would disturb the digestion and nutrition more than cane sugar or milk sugar:

1. The greater ease with which both dextrose and levulose ferment. Dextrose and levulose undergo lactic fermentation in presence of catarrhal mucus with extreme rapidity.

2. The retarding effect of invert sugar upon salivary and peptic digestion seems to be more marked than that of cane sugar, maltose, or lactose. Salivary indigestion may be produced in this way from an excess of invert sugar or of cane sugar. Epigastric heaviness is often marked in sensitive subjects after sweet desserts, but not when these are omitted.

When cane sugar or starch is taken into a previously washed stomach, only traces of lactic acid can be found in the contents of the stomach in an hour (Ewald). The sense of heaviness in the epigastrium seems to me to be due to the retarding effect of the sugars on stomach digestion, and the liquefying action of the saliva upon the starchy foods.

3. The more ready absorption of the glucoses—four times that of peptone—is a third reason why they should not enter largely into our foods. When commercial glucose, or invert sugar, is taken as food, its absorption begins in the stomach and continues until it is all absorbed. This rapid pouring of dextrose into the portal blood may prove too great a tax upon the liver, and a portion of it pass this organ. Functional disturbance of this organ will be the result. The blood may be overcharged with dextrose, and a little of it find its way into the urine.

This, however, is a less serious accident than the tax it entails upon the oxidizing power of the blood. The blood is able to carry only a definite amount of oxygen, and if it is flooded with too much easily oxidizable material, this appropriates the oxygen that ought to be used to oxidize the waste products from the physiological action of tissue cells. These waste products must, in such circumstances, either be excreted in a half-oxidized state or accumulate in the blood. An excess of uric acid is certainly produced, with a highly acid urine and an artificial uric-acid dyscrasia, with all the symptoms of this condition.

A common and rational symptom of the deficient oxidation in the tissues is the marked feeling of malaise which such persons suffer, and which is common in diabetics. That this malaise is due to this cause is evident from the marked improvement when sugar in all forms is withheld from the diet.

When a condition such as I have described has once been established, cane sugar, maltose, lactose, and even starch often seem to aggravate the symptoms. Either from the action of the gastric mucus or the ferments lodged in the membrane, the fermentative changes in the digestive canal are produced almost as readily by cooked starch as by the sugars. It is certain that catarrhal mucus can partially invert cane sugar. For this reason, little difference can often be seen between the action of cane sugar and invert sugar in subjects of gastric catarrh; but in the production of this condition there seems to be a marked difference.

I have attributed the injurious action of invert sugar to the dextrose rather than the levulose, because the latter is so much more readily assimilated than the former, and does not ferment so readily.

It is also uncertain whether levulose is absorbed as such, or is converted into dextrose during absorption. We do know, however, that levulose can be eaten in considerable amount by diabetics without increasing the sugar in the urine.

We may summarize the differences in the action of cane sugar and dextrose (or invert sugar) when taken as food as follows:

1. The former is a natural food while the latter is exceptionally so.

2. The latter undergoes lactic fermentation much more readily in the stomach and duodenum than the former, and interferes more with salivary and gastric digestion.

3. The latter is more rapidly absorbed than the former, owing to the gradual formation of dextrose from the latter during absorption. This rapid absorption may overtax the liver and oxidizing process in the tissues, preventing the proper destruction of waste products of cell action.

4. Clinical observations coincide with these deductions. The only doubt to be raised in this respect is as to how far the author has been able to separate the effects of the overeating of cane sugar from those believed to be due to invert sugar or dextrose. The observations began long before the reasons for the difference in the action of the sugars was known to the observer. These reasons are brought out here to explain the clinical phenomena.

THE PREPARATION OF ASEPTIC CATGUT BY MEANS OF FORMALIN.*

BY R. H. CUNNINGHAM, M.D.

(From the Physiological Department of Columbia College, New York.)

WHILE engaged upon certain experiments necessitating the use of fairly slowly absorbable sutures, I determined to try the effect of hardening catgut in the now well-known histological hardening reagent, formalin, and the results from this procedure are so interesting to myself that a brief report of them will prove, I hope, equally interesting to others who may not have tried it already and who may desire to use sutures or ligatures prepared according to the method described below.

Since the discovery of Berlioz and Trillat in 1890 that a solution of formalin of 1 to 5,000 parts was capable of preventing the growth of micro-organisms in meat juice, a number of writers (Hauser, Aronson, Lehman, Gegner, and others) have satisfactorily demonstrated its great potency as a germicide. Its employment in very dilute solutions for sterilizing instruments and the hands has been advised by several investigators, but it should be used in very diluted form, for if a concentrated solution is applied to the skin a peculiar necrosis occurs that is unaccompanied by the usual signs of inflammation.*

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* Read by invitation before the Section in General Surgery of the New York Academy of Medicine, April 8, 1895.

More to the object of this paper, however, is the property that formalin possesses of uniting with gelatin and with albumin to form insoluble compounds. Thus if a film of gelatin, such as one gets on a photographic gelatin dry plate, is immersed in a solution of formalin for some hours, it is impossible to dissolve the now changed film, even with prolonged boiling in water.

If commercial surgical catgut is wound not too tightly on a glass spool and soaked for two days in a mixture of absolute alcohol and ether (equal parts of each) to thoroughly remove the grease, then rinsed in alcohol for a few moments,† and from this removed to a small jar that has a tightly fitting cover and which contains enough of a mixture of equal parts of formalin and alcohol to well submerge the catgut, after several days the catgut may be removed and the formalin washed out by soaking it several times in fresh alcohol, or, what I consider more preferable, it may be transferred to normal saline solution and *boiled* for half an hour or more and then be transferred to alcohol and preserved therein as is usually done.

When catgut has been treated with this alcohol-formalin mixture a very peculiar change as regards some of its properties will be found to have occurred. It does not become stiff or brittle, and even after boiling in water for some hours it loses practically none of its former strength, nor does it disintegrate in boiling water as is the case with catgut prepared by the methods generally in vogue.

The fact that it can be boiled without destroying it is very important for a number of reasons, but the three given below will suffice for present purposes.

It facilitates the complete removal of the irritating formalin from the catgut, as both formalin and alcohol are readily soluble in water.

Secondly, a more aseptic state of the gut is produced by the antiseptic properties of the formalin.

Lastly, it becomes still more surely aseptic as well as non-irritating from boiling in normal saline solution into which the spool of catgut can be put just at the beginning of a surgical operation and in this way avoid bringing alcohol, oil of juniper, etc., in contact with delicate membranes and other tissues.

The advantages gained from the employment of animal ligatures and sutures rendered *positively* aseptic by this method are obvious, so that further dissertation thereon is needless.

In conclusion, I would add that other animal substances, such as decalcified bone drains, bone buttons and rings, rings of catgut after Abbe, etc., will give equally good results with the formalin method, and may be used on such occasions as require a not too early softening or absorption of the animal substance that is employed.

59 West Sixty-fifth Street.

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* Gegner. Ueber einige Wirkungen des Formaldehyds. *Münch. med. Woch.*, 32, 1893.

† This preliminary treatment may be omitted if one so desires.

APPENDICITIS.*

By WALKER SCHELL, M.D.,

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The last word has not been written on this subject, nor is it likely that many questions of practical importance connected therewith will be formulated into rules for many years.

It is even possible that, notwithstanding the vast literature of the subject, many things have been overlooked.

It is peculiarly unfortunate for medicine that all the operations of the human mind cast themselves into the mold of some theory, and all facts are dominated by the evil spirit of hypothesis. Thus an *a priori* pathology has led the writers of our text-books to lay down *a priori* rules of treatment. This school of writers coined a multitude of terms to describe the location of inflammatory conditions in the right iliac fossa. We to-day understand that this refinement was unnecessary and without the basis of observation. It is sometimes with great relief that we turn away from the voluminous communication of some writing-desk theorist to the *chefs d'œuvre* of ancient writers on medicine. These classics of medicine are vast storehouses of facts founded on observation, hence the sage of Cos—the mighty Hippocrates—wrote not for one age or one country, but for all time and for all the generations of men. Practical men are breaking the idols of the theorists in the temple of thought nowhere more ruthlessly than in the field of abdominal medicine and surgery. All the hidden mystery of pathological condition must stand before our unveiled eyes open and understood. A less complete investigation does not satisfy the demands of modern science. We allow nothing to stop our investigations. This field of investigation is peculiarly American, and in America it received its first and therefore its chief impulse from the pioneers of the profession in Kentucky, Ohio, and Indiana. There need, however, be no apology from any one for carrying a lance into a free field, since so much is uncertain and so frequent are the mistakes of the most experienced men that any observation is worthy of record. One need only make a superficial examination of the vital statistics of our State to be convinced that many cases of appendicitis are still overlooked by the average practitioner, and the patients die without the chance of relief being offered them. If such is not the case, it will then be the duty of some experienced man to explain the meaning of the two hundred and thirty-one deaths from peritonitis for the statistical year ending October, 1892, and especially when we learn that eighty-eight deaths were of males, sixty-two of whom were under forty years of age. It may be safely concluded that some of the one hundred and thirty-five cases returned as enteritis were unrecognized cases of appendicitis. Of course, in the case of children we should be little inclined to question the returns made to the health officers. The exceedingly common return, "inflammation of the bowels," is always open to suspicion. It is not intended, however, in this paper to in any way discuss statistics, and it is always dangerous to discuss inferential statistics, so that branch of the subject will be dropped with the remark that few experienced men doubt that many cases of appendicitis are in practice unrecognized.

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* Read before the Indiana State Medical Society.

The suspicion that every case of peritonitis in the male may be due to perforation of the appendix is just, although I present you a specimen of an appendix far short of perforation which caused a well-marked inflammation of the peritonæum that bade fair to become general even before perforation had taken place. Other causes of peritonitis and abscess in the right iliac fossa are not common.

For purposes of treatment it is not necessary that the surgeon should separate perforative and inflammatory affections of the cæcum from those of the appendix. The apex of the cæcum is usually found upon the psoas muscle, and it is well that we should remember that this is just within the middle third of the ligament of Poupart.

If you examine a large number of bodies you will find that the position of the cæcum is not constant, and it may be even in the pelvic cavity. This last is a location which might cause diagnostic difficulties in the case of female subjects.

It is well, then, to remember that the appendix may be the cause of pelvic abscess, and it seems to me that there is just ground for believing that some of the reported cases where fæcal material escaped from the fistulous openings of a pelvic abscess were in reality cases of perforative appendicitis. Sometimes the cæcum is so mobile that the appendix is carried high in the abdomen, so that we might believe the liver or gall-bladder to be the seat of the difficulty.

In a paper intended to be read in a few minutes little can be said about diagnosis. The prominent features of this disease must be ever in the mind of the physician, for it is a difficulty that he must frequently encounter, and the exitus lethalis may occur in twenty-four or forty-eight hours. The symptoms are, briefly: Sudden and violent pain in the right iliac fossa, aggravated by every movement and by the gentlest palpation; vomiting of green material; constipation; and the presence of a tumor the percussion note of which is dull, or dull tympanitic. Frequently the percussion note is clear at an early stage of the disease, because the appendix and the exudation are behind the cæcum.

The pain often radiates, but this fact need not throw us off our guard. Especially do we elicit pain when we move the right thigh or press upon the abdomen at a point from five to seven centimetres within from the anterior iliac spine. Disturbances of micturition are very common.

The description of the minute anatomy of appendicitis is not found in any of our standard authorities. Pathologists have studied the late changes of the disease. It has probably not been their fortune ever to examine carefully those of its inception. Frequently more is to be learned from the beginning than from late changes. It is therefore with peculiar pleasure that I present to this learned body of men some microscopical preparations which show the very beginnings of the disease. You will see the beginning of the destructive process in the glands. Some specimens which I have mounted show a single gland involved in the destructive process, others show four or five. There the infecting agent will gain access to a lymph vessel, and a little distance removed and beneath apparently healthy tissue you will see little pus pockets, the beginnings of abscesses. These are usually situated in the adenoid layer of the appendix, and, I am satisfied, frequently find their way into the interior. This accounts for so many fortunate cases where symptoms are threatening. On the other hand, the cicatrizing of these abscesses and ulcerations accounts for stricture and deformity, so frequently found where there is a history of relapsing appendicitis.

The number of glands in the appendix is so great that it may be regarded anatomically as a tubular agminated gland.

These glands do not escape irritation and the action of infectious poisons.

Next to the ileum the cæcum and vermiform appendix are most frequently altered by ulceration and gangrene in typhoid fever. If you will take the trouble to examine in detail the records of post-mortem examinations after typhoid fever you will be surprised at the frequency of alterations in the appendix, and in a very large percentage of cases these changes are of the gravest character. You will find that a fair examination of the statistics will show it to be the seat of perforating ulcer in from ten to thirty per cent. of the cases where this lesion takes place in typhoid fever. In one case of appendicitis I operated successfully four weeks after apparent recovery from typhoid fever. The relation of typhoid fever to anatomical changes in the appendix has not been sufficiently emphasized, and possibly is not properly understood. To say the least, it presents an interesting field worthy of investigation.

Every one can call to mind cases of catarrhal or ulcerative changes of the cæcum and appendix following typhoid fever which at the time were not understood or appreciated as a part of the disease, and where symptoms of a very annoying character were present long after the fever ended. Perforation of the cæcum, except as a result of dysenteric, tubercular, or typhoid ulceration, is a very rare accident. There are cases, examples of the opening of an abscess, caused by changes primarily in the appendix, the opening in the cæcum being the secondary process. This fact was not properly interpreted by the older pathological anatomists, hence the frequency of their use of the term typhlitis. It is true that ulceration of the cæcum is not very uncommon, but it usually stops short of perforation, and the history is that of dyspepsia, decomposition of the contents of the bowels, and chronic constipation. The symptoms are far different from the exceedingly characteristic disease to which we have for convenience applied the term typhlitis.

The older writers on this subject laid great stress on the presence of foreign bodies in the appendix. The presence of altered fæcal masses as a source of irritation of the appendix is common, but real foreign bodies are rare. In two cases where I have found these bodies at the autopsy I am now inclined to believe their presence was accidental.

In one autopsy held by myself and Dr. Allen Pierson, where the cause of death was perforative gangrenous appendicitis, we found a number of blackberry seeds in the appendix and some loose in the peritoneal cavity. I am not inclined to attribute to these bodies the same importance that we thought they possessed at the time. In this case the symptoms resembled very closely those of obstruction or internal strangulation. There were fæcal vomiting and obstinate constipation. These symptoms were due to peritonitis septica universalis. To avoid mistakes, every case should be thoroughly investigated. If the signs of perforative peritonitis are present the history of the case may throw much light upon the diseased conditions before us. Perforative peritonitis which becomes general is a most fulminating disease, and where we have reason to believe that a defensive barrier has not formed, we must act quickly if we are to do any good. There is absolutely no hope for the patient if we delay even a few hours. In consultation once with Dr. Jacob Coble at dusk on a winter's evening we decided to wait until morning rather than undertake the operation by uncertain light in a log cabin. The diagnosis was plain but the symptoms had just begun and did not seem to be extremely urgent.

We returned the next morning in time to hold an autopsy, but too late for operation, as our patient had died during the night. There are cases where the general condition is so bad that operative interference seems absolutely unwarrantable, the slight shock of rapid incision and drainage proving quickly fatal. I have in mind one case, however, where the patient seemed moribund from the profound shock of perforation, but was rescued by rapid operation and a barrier of gauze that prevented further infection. In these cases we must step in and do our whole duty by the patient even at the loss of personal reputation.

In these cases our conduct should be absolutely unselfish. In cases where Nature has erected a defensive barrier the operation must be done with much caution while the adhesions are yet weak, or harm will be done. It is still a question much debated in consultations and by no means settled as to the proper time for interference. When the case is seen immediately after perforation has taken place there should be no delay, but when Nature has once established her defensive barrier we may well fear that our manipulations might cause general infection of the peritoneal cavity.

The fear that these adhesions may give way on slight movement or any increased abdominal pressure, such as vomiting, is causing surgeons to accept the responsibility of operating even in cases doing well, since any accident might bring about a fatal result. Rupture of the abscess is not always unfortunate. I remember one case where a time of operation was appointed and preparations were made, when an hour or two before our returning to perform the seemingly necessary operation Nature made an opening into the bowel. A large amount of pus was discharged by stool, to the great relief of the patient, and the operation was declined. Recovery was uninterrupted, and so far as I know she has been comfortable since.

Exceptions can never be accepted as rules of practice, and in many cases our conduct would be wiser if they did not occur. The fact that this disease is not always of the grave character assumed for purposes of unity of discussion so far in this paper is known to all.

There is in practice infinite diversity of symptoms. In cases of catarrhal appendicitis to which the term typhlitis stercoralis is applied we have symptoms of varying severity.

The severer forms have for practical purposes already been discussed as far as it seems to me profitable, since they end in deep ulceration and perforation. The symptoms of milder disease are often vague, and are principally flatulence, tenderness in the right iliac fossa, and pain in the right thigh. Constipation is usually present, and, if obstinate, leads to the accumulation of gases and altered contents of the bowel above the seat of the disease, which causes vomiting. These symptoms, sometimes very acute, subside after free movement of the bowels.

This fact has not escaped observation. It is a rule of sound practice to remove irritating ingesta, fermenting intestinal secretions, and fæcal masses.

When this rule is applied to mild cases of typhlitis the result is highly satisfactory. There can be little objection certainly to the cautious use of enemata, except where the symptoms are so clear and so severe as to set at rest all doubts as to the nature of the disease and establish in the dullest mind the fact that perforation has occurred, when the use of enemata would be harmful and sometimes dangerous.

The stupid and blundering practice of giving cathartics in these cases can not be too strongly condemned. The resort to purgatives is so common that it must be rebuked in language that can not be misunderstood. It is in violation of common sense and results in disaster. What I have said of cathartics in general applies to salines in particular.

Active peristalsis even in the stercoral form of the disease aggravates the symptoms, not uncommonly increasing the vomiting and bringing on dangerous symptoms of intestinal obstruction, because the contents of the bowel can not be propelled through the inflamed and paralyzed section. In mild cases cathartics should not be used, because they are not needed, since Nature or a gentle enema can accomplish recovery without them.

Active peristalsis where the cathartic or saline is successful so far as securing movement of the bowels is concerned is also disastrous to the patient, because it breaks down and tears salutary adhesions, opens perforative ulcers that may be closed by inflammatory lymph, and spreads infection by movement of the intestinal coils which act as the defensive barrier to the general cavity of the peritonæum.

The surest way to fill the general cavity with fæcal matter is to liquefy the contents of the bowel. If, therefore, you wish to destroy your patient, give him saline cathartics. Tait, following the practice of the ancients, has taught us the value of intestinal drainage in cases where there is no lesion of the intestinal tract; but no man can assert its value in ridding the abdomen of septic material, especially such as is present in fæcal extravasation.

If it could be accomplished, there is nothing to be gained by exhausting your patient by vomiting and purgation, nor do I believe they are free from danger after the operation. I have myself seen two cases of dangerous obstruction of the bowels brought on by the administration of Epsom salts. These two patients were fortunately rescued by the heroic administration of high enemata, after discussion of the advisability of an operation to be undertaken for their relief. Such experiences, I can assure you, are not pleasant, and should not be sought by the administration of cathartics. The use of salines can not move the bowels in perforative septic peritonitis, and adds to the distress and danger of the patient.

The mild form of disease is indeed amenable to medical treatment, but it is not always possible to make an emphatic diagnosis, and in uncertainty we should act as if a grave form of the disease were present.

There can be little alleged for medicine in any of these cases. Pain makes imperative demands for relief, and opium and cold are the only reliable anodynes.

When pus has accumulated and becomes to some extent localized, warmth may give some relief, but surgical measures should not be delayed. We have not the right to wait for the symptoms of general infection when the signs of impending disaster are present, as indicated by the pulse, rigid muscles, vomiting, and meteorism, and increasing size of the tumor. We should be warned and act in time. Nothing is gained by delay. The physician who does not intend to operate himself at the golden moment should call a surgeon, and call him early. In these cases the treatment must be in accord with the maxim, *ubi pus, ibi evacua*. In order to determine the site of the incision, we should make as thorough an examination as seems justifiable under the circumstances. An examination through the rectum should be the rule, and bimanual vaginal examination should not be omitted except in virgins. No advantage is gained by attempting to operate in the abdominal lines, and much inconvenience is frequently occasioned the operator, and, besides, it violates two important surgical principles—direct incision and direct drainage. I have known of a number of operations where the median incision was used. This may have been proper in the cases referred to, but is usually bad, if not dangerous.

In my experience as an operator I have always carried my incision directly over the tumor, taking care only to avoid the deep epigastric artery, because wounding it is in no way necessary to successfully reach the disease. The direct operation is in every way better than to seek to reach the seat of the disease by a remote incision. It does not seem to me that it is possible to decide on the length of the incision in an arbitrary manner. It can easily be enlarged, if too small, after the opening of the abdomen.

In the end it should be free enough to enable us to do our work thoroughly and to make a careful examination. If it is too small we work in the dark, and are likely to break down defensive adhesions. It must be remembered that the abscess wall is made up of coils of intestine. Only when the walls of the abscess are very firm are we justified in irrigating. The introduction of fluids for any purpose in fresh cases is not good practice. It will spread the infection and break down barriers. It is a violation of the rules of antiseptic surgery.

Sterilized gauze may be gently used to cleanse the abscess cavity; but water should only be used in general septic peritonitis, where matters can not be made worse, and thorough flushing and cleansing may possibly offer some hope.

If any considerable amount of pus is present, provision for drainage must be made. A glass or rubber tube should be used, and the cavity well filled with iodoform gauze. If all goes well these may be removed and the wound closed by means of secondary sutures on the second or third day. These sutures should be placed in position at the time of the operation. The stump of the appendix should be covered by a flap of peritonæum, if possible. The appendix itself should be amputated close to the cæcum, if this can be done without great difficulty.

If there is a mass of adhesions and the appendix is buried in the walls of the abscess cavity, no effort at its removal should be made, since the most important part of the operation is completed when we have opened the abscess, and anything further that we may do will only make matters worse and add to the danger of the patient.

Cases of relapsing typhlitis we shall frequently meet with, and in some of these cases the patient can not be much aided without an operation. The operation should be done after the symptoms have subsided, if the case presents such an opportunity. The history of the case and the conditions found upon thorough examination should amply justify the operation before it should be undertaken. We have no moral right to undertake useless operations, and there are no greater knaves in our profession than those conscienceless individuals who are ever ready with the knife. The welfare of the patient should be our only guide as to right conduct.

The motive which led me to write this paper should probably be stated, since the literature of this subject is already so vast that a paper should justify its bringing forth. My experience is doubtless that of the ordinary practitioner whose field of work is limited to the usual routine of the every-day practice of his profession. This I conceive to be its chief merit, since men of vast experience not uncommonly exaggerate the importance of this work, and seek to throw mystery and difficulty around their contributions to science. Many of our text-books are not so clear and lucid as it seems to me they should be on certain points connected with this disease.

I have endeavored to make emphatic certain phases of my own experience where our books leave us in doubt as to the right line of practice.

I wish, further, to encourage the ordinary practitioner to do this operation, since in that way only can it be of great value to mankind. Operations that can only succeed in the hands of a few great experts are not worth much to the race.

This operation can and should be done by every well-qualified general practitioner. By wide use it can be of untold benefit in the saving of human life and in the alleviation of human suffering.

APPENDICITIS.

RUPTURE OF THE SAC AND ESCAPE OF ITS CONTENTS INTO THE ABDOMINAL CAVITY.

By J. M. BLACK, M. D.,
KNOXVILLE, TENN.

While I recognize the fact that surgical procedure for the relief of appendicitis is no longer an uncommon feature, I desire to report another case to illustrate what can be done under the most inauspicious circumstances, as well as to refer to the opposition with which we meet not only among the laity but the profession as well.

On February 7, 1895, I was called in consultation to see Dr. H., aged thirty-nine years; weight, a hundred and thirty-five pounds; American, and with good family history. He had been suffering four days; persistent vomiting, colicky pains, tenderness in the right iliac fossa, and obstinate constipation, with previous history of diarrhœa. Patient was lying on the back, with right leg flexed, with flashes of heat and cold. The temperature was 102° and pulse 104. A tumor of the size of a hen's egg was easily recognized in the right fossa, with an inflammatory condition of external parts. I urged an immediate operation and hastily summoned Dr. F. B. Powers, Dr. H. W. Bright, and Dr. H. P. Coile, who concurred in the diagnosis and advice for immediate surgical interference, to assist me. The patient and family strenuously opposed an operation despite the fact that they were told the prognosis of rupture and death in a few hours. Another physician was sought by the patient, and he gave the following advice: "Five years ago I would have advised immediate operation, but now I advise you to let Nature take her course."

Two days later, at 9 P. M., on February 9th, I was hastily summoned to the bedside of the patient, whom I found in a dying condition; expression anxious; face pallid; pulse, 118, weak and flickering; temperature under tongue, 103·5°. He had fainted at 1 P. M., with chills following. The tumor was absent, with diffuse abdominal tenderness. At the earnest solicitation of the patient, we agreed to offer him the last resort—abdominal section—despite the inauspicious surroundings and conditions. He was lying in a (surgically speaking) filthy basement room occupied by the entire family. We could not operate there with any prospects of success, so decided to remove him to a comparatively clean room upstairs. To accomplish this purpose we had to carry him around through the open air, with the mercury seven degrees below zero and snow about eight inches deep. Just as soon as possible, with the assistance of the above-mentioned surgeons, and by the light of two small kerosene lamps, the operation was begun. The appendix was found to be ruptured and the remnants packed with fæcal concretions. From four to six ounces of foul fæcal pus was burrowing in the peritoneal cavity. This was thoroughly washed out with hot distilled water, the appendix ligated and removed, and the stump closed by Lembert's suture.

Everything went well until the ligation of the appendix was reached, when the patient became pulseless and breathing stopped. The patient was considered dead on the table, when my worthy colleague, Dr. Powers, came to the rescue. Removing his hands from the cavity where he was grasping the blind gut, he surprised us with a hasty restoration of the vital functions by the use of a pair of uterine dilators introduced into the rectum and repeatedly dilating the sphincter ani. We are all familiar with this dilatation in chloroform narcosis, but with his permission I commend Dr. Powers's use of uterine dilators as the most speedy and satisfactory, especially in cases, as in this one, where it seemed impossible to introduce the thumbs.

After the patient's restoration to normal lung and heart action, the cavity was again thoroughly douched, a drainage-tube inserted, and the wound closed with three rows of sutures—first the peritonæum, then the muscles, and lastly the skin.

The patient made an uninterrupted recovery. Two hours after the operation the pulse was 90 and temperature 102°.

The wound was not dressed until the third day. There was no discharge. The peritonæum and lower muscular layer were entirely healed and the tube was removed. There was some suppuration under the skin, due doubtless to infection from the pus as it was washed out of the cavity. On the seventeenth day the patient was walking around his yard, and on the twentieth day after the operation he walked a distance of a mile and a half to my office and was finally discharged.

NOTES ON A CASE ILLUSTRATING

THE TREATMENT OF ECZEMA CAPITIS BY SALICYLATE OF SODIUM.*

By CHARLES E. LOCKWOOD, M. D.,
ATTENDING PHYSICIAN, DEPARTMENT OF DISEASES OF THE NERVES, OUTDOOR POOR, BELLEVUE HOSPITAL, NEW YORK.

Different observers throughout the world send out ideas, and these germs of thought seem to float in the mental atmosphere like germs in the physical atmosphere, until, finding a congenial soil, they take root and bring forth fruit. In illustration of this, during the past summer I was reading Dr. Alexander Haig's most interesting book on *Uric Acid as a Factor in the Causation of Disease*, and was struck with his special commendation of salicylic acid and its compounds as favoring the excretion of uric acid, and especially with the point emphasized by him, "that, as regards acute rheumatism, the salicylic compounds are powerful in curing the disease exactly in proportion to their power of eliminating uric acid; that, dose for dose, salicylates are most powerful in both respects, and are followed by salol and at some distance by salicin"; and his experiments and charts seem to show that, under the use of salicylates, we have to do with excretion and not with new formation of uric acid. It was just at this time that a gentleman consulted me for an annoying eruption on his forehead, and he gave the following history:

Mr. N., male, white, born in the United States, aged thirty-eight years, weight one hundred and ninety pounds, occupation sedentary, consulted me on June 14, 1894, complaining of a red, papular, scaly eruption on the scalp and forehead near the hair border, attended with most troublesome itching. He said it had appeared about four years before; that at first it was very slight, but as time went by it became worse, until he could stand it no longer. He gave a history of having suffered from rheumatism from 1880 to 1884; but since the skin trouble began the rheumatism had disappeared. An examination of his urine, passed on rising in the morning, showed acid reaction; specific gravity, 1·030; no albumin; no sugar; microscopical examination developed nothing abnormal. A diagnosis was made of eczema capitis, and, in view of the rheumatic history, I prescribed as follows:

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* Read before the Medical Society of the State of New York at its eighty-ninth annual meeting.

℞ Acid. salicylic., }
Sodii bicarb., } ....āā ʒ ij;
Glycerin............................ ℥ ss.;
Aquæ ... .q. s. ad ℥ vj.

M. Sig.: Tablespoonful in water three times a day, and half a teaspoonful of bicarbonate of sodium in carbonic-acid water twice a day.

Locally I advised that he sponge the eruption for ten minutes night and morning with the "black wash," afterward rubbing in the following ointment:

℞ Ol. picis............................ ʒ j;
Ungt. hydrarg. ammoniat.............. ʒ vij;
Ol. rosæ............................ q. s. M.

On July 10, 1894, about a month after his first visit, the patient called and said the trouble on his head had improved after taking the medicine forty-eight hours. The appearance of the eruption was now not so red, but brownish in color and scaly, and I prescribed two drops of Fowler's solution of arsenic with one teaspoonful of bitter wine of iron after meals, one fortieth of a grain of podophyllin three times a day for five days.

July 31, 1894.—Eruption has almost entirely disappeared.

August 31st.—Patient writes, "I have not been bothered with it since you treated me."

Thinking Dr. Alexander Haig, of London, might be interested in this case, as bearing on the subject to which he has given so much attention—namely, "uric acid as a factor in disease"—I sent a history of the case and its treatment to him, and received the following reply:

> "I am greatly interested in what you say about the treatment of eczema by salicylate of sodium internally, as I have never used it for this trouble, and, strange to say, since I received your letter I have seen a patient who suffered from (gouty?) eczema of the face, and who had obtained more relief from a mixture containing salicylate of sodium than from anything else. In this case a considerable excess of animal food was being taken, and I have suggested some alteration."

Dr. Haig wrote me again subsequently that he would try the treatment in all cases of eczema that might come under his care, and I give the notes of this case to the society in order to draw forth the opinion of its members on this subject, and with the hope that others may be induced to give a trial to salicylate of sodium in all cases of eczema with a gouty or rheumatic history.

It is of interest to note in this case that the eruption had existed for four years, and improved at once on the administration of salicylate of sodium.

An Old Member of the Medical Society of the County of Kings, N. Y.—A dinner is to be given at the Montauk Club, in Brooklyn, on the 25th inst., in honor of Dr. Andrew Otterson, the oldest member of the society, under the direction of its entertainment committee.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by
D. Appleton & Co.
Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, APRIL 20, 1895.

THE NEW YORK BOARD OF HEALTH AND FAMILY PRACTITIONERS.

It is announced that the city board of health has passed resolutions to the effect that any inspector or medical officer acting under the board who, when brought officially into contact with a case of infectious disease, interferes directly or indirectly with the attending physician's treatment, or who undertakes medical attendance in a family whose acquaintance he has made in the line of his official duties, shall be dismissed from the service, unless he has been specifically instructed to perform the acts in question by the board or by a chief of division; also that the sanitary superintendent shall instruct all the medical sanitary inspectors anew as to their specific duties in respect to persons sick with infectious disease.

The announcement is coupled with the statement, apparently on the sanitary superintendent's authority, that the passage of the resolutions was not the outcome of any special charges or complaints against any of the inspectors. This we can readily believe, for the inspectors have, we are persuaded, generally been very discreet under conditions that must sometimes have put their conscientiousness to a severe test. We have no doubt that, as a body, they are hard-working and prudent men, always ready to concede the family physician's predominance in every matter that does not involve a direct infraction of the sanitary ordinances. Still, in exceptional instances the contrary may have been the case. It would not be strange if it had been, for the amplified part played by the board in the actual diagnosis and treatment of individual cases of disease in these days of bacteriology and serum therapy must have greatly multiplied the occasions on which friction might be almost inevitable. We therefore look upon the board's action in this matter as highly commendable.

THE PILOCARPINE CURE.

The news has been spread over the country that our consul-general in Berlin has announced in a consular report that a New York physician now sojourning in the Prussian capital has invented a most promising method of treating pulmonary tuberculosis and certain other grave diseases by the use of pilocarpine. We are told that the particulars are to reach us in a Berlin medical journal by due course of mail. All we can do about the matter is to wait, therefore, with different degrees of expectation, ranging from distrust to confidence according to the various impressions made on us as individuals by the memory of the Koch tuberculin extravaganza, by the still undetermined status of the antitoxine treatment of diphtheria, and by other analogous therapeutical novelties that have sprung up of late. Our own impression is that it will be found that Dr. Waldstein, for that is the physician's name, has not been incautious or over-enthusiastic in his statements. Excess of zeal in proclaiming new and advanced achievements and promises as to the healing art is common in persons who have not had a medical training, and it may be that this fact has been exemplified anew in the consul-general's report. We hope, however, that Dr. Waldstein's article will be found to unveil a substantial addition to our therapeutical resources.

MINOR PARAGRAPHS.

DIPHTHERIA-ANTITOXINE SERUM.

At a meeting of the Paris Hospital Medical Society held on March 29th, according to the *Medical Week*, Dr. Variot referred to the fact that injections of antidiphtheritic serum in doses of from five to ten cubic centimetres caused a rise of temperature of from 2·25° to 4·5° F. He said this rise was undoubtedly due to some "hyperthermizing substance" contained in the serum, and the problem before us was to isolate from the serum this principle that might become a source of danger. Dr. Le Gendre confirmed this experience. Professor Hayem referred to his former experiments and said: "Antidiphtheritic serum obtained from a horse is necessarily toxic to man." This toxicity, he said, was due to albuminoid substances in which heat produced isomeric changes resulting in destruction of their noxious properties. Dr. Gouguenheim, while approving of the administration of antitoxine serum, said that it was entirely without effect, even in very large doses, in cases of hypertoxic diphtheria. Dr. Sevestre stated that he had injected ordinary horse serum into four children suffering from non-diphtheritic sore throat, and that the injections had produced slight febrile reaction and within a few days eruptions similar to those observed after injections of serum from an "immunized" animal. The latter, therefore, and not the antitoxine itself, caused the untoward symptoms that followed the use of antitoxine serum.

ANTISTREPTOCOCCOUS SERUM.

The *Semaine médicale* states that Dr. Roger, Dr. Charrin, and Dr. Marmorek reported at a meeting of the Paris Biological Society held on March 30th that they had employed antistreptococcous serum in the treatment of cases of erysipelas and puerperal septicæmia. Dr. Marmorek had administered an initial dose of ten cubic centimetres of serum, derived from horses or asses which had been rendered insusceptible by the inoculation of a very virulent culture of the streptococcus, to forty-six patients suffering from erysipelas, all of whom had recovered. Dr. Roger and Dr. Charrin had treated two cases of puerperal septicæmia, one case of erysipelas in a three-weeks'-old infant, and one case of pseudo-membranous angina with this serum, and the patients had recovered without complications.

ITEMS, ETC.

The Society of Medical Jurisprudence.—The special order at the last meeting, on Monday evening, the 8th inst., was a paper by Dr. Cyrus Edson, entitled The Powers of Boards of Health.

The American Medical Publishers' Association will meet in Baltimore on May 6th, under the presidency of Dr. Landon B. Edwards, of Richmond. Medical editors, publishers, and business managers are invited to be present.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 16, 1895:

DISEASES.	Week ending Apr. 9.		Week ending Apr. 16.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	5	1	6	2
Scarlet fever	119	21	102	11
Cerebro-spinal meningitis	1	2	1	1
Measles	208	15	214	14
Diphtheria	237	43	231	34
Small-pox	4	0	0	0
Tuberculosis	193	111	99	107

Change of Address.—Dr. A. Caillé, to No. 753 Madison Avenue, New York.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 1 to April 13, 1895:*

Ebert, Rudolph G., Captain and Assistant Surgeon, is relieved from duty at Fort Huachuca, Arizona, and ordered to Fort Columbus, New York, for duty at that post.

Shillock, Paul, Captain and Assistant Surgeon, is relieved from duty at Fort Wingate, New Mexico, and ordered to Madison Barracks, New York, for duty at that post, to relieve Benham, Robert B., Captain and Assistant Surgeon. Captain Benham, on being relieved by Captain Shillock, will report in person for duty at Fort Wingate, New Mexico.

The following-named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the Association of Military Surgeons of the United States, to be held in Buffalo, N. Y., May 21 to 23, 1895: Baohe, Dallas, Lieutenant Colonel and Deputy Surgeon General; Harvey, Philip F., Major and Surgeon; and Appel, Daniel M., Captain and Assistant Surgeon. They will proceed from their respective stations in time to reach Buffalo on May 21, 1895, and upon adjournment of the meeting will return to their proper stations.

The following-named officers are detailed to represent the Medical Department of the Army as delegates at the annual meeting of the American Medical Association to be held at Baltimore, Md., May 7 to 10, 1895: Forwood, William H., Lieutenant Colonel and Deputy Surgeon General; Winne, Charles K., Major and Surgeon; Reed, Walter, Major and Surgeon; and Perley, Harry O., Captain and Assistant Surgeon. They will proceed from their respective stations in time to reach Baltimore on May 7, 1895, and upon the adjournment of the meeting will return to their proper stations.

Banister, William B., Captain and Assistant Surgeon, is relieved from duty at Fort McIntosh, Texas, and ordered to duty at Fort Omaha, Nebraska.

Pilcher, James E., Captain and Assistant Surgeon, is granted leave of absence for two months on surgeon's certificate of disability.

Reynolds, Frederick P., First Lieutenant and Assistant Surgeon, is granted leave of absence for one month, to take effect upon his relief from duty at the U. S. Military Academy, West Point, N. Y.

Robertson, Reuben L., Captain and Assistant Surgeon, is granted leave of absence to and including July 3, 1895, on which date his resignation has been accepted by the President to take effect.

The following-named officers will report in person to Dewitt, Calvin, Major and Surgeon, president of the examining board appointed to meet at Fort Leavenworth, Kansas, on Wednesday, May 1, 1895, at such time as they may be required by the board for examination as to fitness for their promotion, and upon conclusion of their examination will return to their proper stations: Raymond, Thomas U., First Lieutenant and Assistant Surgeon; Snyder, Henry D., First Lieutenant and Assistant Surgeon; Smith, Allen M., First Lieutenant and Assistant Surgeon; Clarke, Joseph T., First Lieutenant and Assistant Surgeon.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending April 13, 1895:*

Pickrell, G. McC., Passed Assistant Surgeon. Detached from the U. S. Steamer Newark, and granted three months' leave of absence.

Dunbar, A. W., Assistant Surgeon. Detached from the U. S. Steamer Vermont, and ordered to the U. S. Steamer Newark.

La Motte, Henry, Assistant Surgeon. Detached from the U. S. Steamer Newark, and ordered home and granted two months' leave of absence.

Bagg, C. P., Assistant Surgeon. Detached from the U. S. Naval Hospital, Mare Island, Cal., and ordered to the U. S. Steamer Monterey.

Society Meetings for the Coming Week:

Monday, *April 22d:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

Tuesday, *April 23d:* Medical and Chirurgical Faculty of Maryland (first day—Baltimore); New York Dermatological Society (private); Medical Society of the County of Putnam (annual), N. Y.; Hunterdon, N. J., County Medical Society (Flemington); Litchfield, Conn., County Medical Society (semi-annual); Buffalo Obstetrical Society.

Wednesday, *April 24th:* South Carolina Medical Association (first day—Columbia); Texas State Medical Association (first day—Dallas); Medical and Chirurgical Faculty of Maryland (second day); New York Academy of Medicine (Section in Laryngology and Rhinology); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Society of the County of Albany, N. Y.; Middlesex, Mass., North District Medical Society (annual—Waltham); Philadelphia County Medical Society; Gloucester, N. J., County Medical Society (quarterly).

Thursday, *April 25th:* South Carolina Medical Association (second day); Texas State Medical Association (second day); Medical and Chirurgical Faculty of Maryland (third day); New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Pathological Society of Brooklyn; Roxbury, Mass., Society for Medical Improvement (private—annual); Hartford, Conn., Medical Association (annual); Pathological Society of Philadelphia (conversational).

Friday, *April 26th:* South Carolina Medical Association (third day); Texas State Medical Association (third day); New York Clinical Society (private—annual); New York Society of German Physicians; Yorkville Medical Association, New York (private); Philadelphia Clinical Society; Philadelphia Laryngological Society; Cleveland, O., Medical Society.

Saturday, *April 27th:* New York Medical and Surgical Society (private); Worcester, Mass., North District Medical Society (annual—Fitchburg).

Births, Marriages, and Deaths.

Married.

Gaunt—Dickinson.—In New York, on Monday, April 15th, Dr. Thomas T. Gaunt and Miss Fannie R. Dickinson.

Hodenpyl—Fahys.—In New York, on Tuesday, April 16th, Dr. Eugene Hodenpyl and Miss Marie D. Fahys.

Died.

Birckhead.—In Newport, R. I., on Friday, April 12th, Dr. William Hunter Birckhead, in his fifty-sixth year.

Dedrick.—In Fall River, Mass., on Wednesday, April 10th, Albert Clinton, Jr., son of Dr. and Mrs. Albert Clinton Dedrick.

Siegel.—In Brooklyn, on Friday, April 12th, Caroline Isobel, daughter of Dr. and Mrs. Ferdinand Siegel, aged two years, four months, and twenty-three days.

Starr.—In Bellevue, Pa., on Saturday, April 13th, Dr. David L. Starr, aged eighty-three years.

Westbrook.—In Brooklyn, on Friday, April 12th, Dr. Benjamin F. Westbrook, aged forty-four years.

Obituaries.

BENJAMIN F. WESTBROOK, M. D.

In the decease of Dr. Westbrook, which took place at his home, in Brooklyn, on the 12th inst., the medical profession sustained a loss that will be felt far beyond the city of his residence. He was a copious and unusually accomplished writer, and such a man is always missed by a wide circle of readers. He had a peculiar aptness for didactic writing, and yet it was so curbed by a scrupulous regard for the full import of facts from all points of view that he never allowed facility of diction to lead him away from perfect accuracy and fairness of statement. He was a safe and at the same time an agreeable teacher, of a sort not over-abundant.

Letters to the Editor.

"WATER-BORNE CHOLERA."

4612 Easton Avenue, St. Louis, *April 13, 1895.*

To the Editor of the New York Medical Journal:

Sir: In one of your March issues appeared an exceedingly interesting contribution to the study of water-borne cholera, penned by Dr. George Homan, health commissioner of St Louis. In relating the fearful ravages of the disease in the ranks of the Fifty-sixth Regiment, while *en route* from Helena to St. Louis, he points to the particularly frightful mortality in the rank and file of the detachment on board the Continental.

This steamboat carried a cargo of unrefined sugar, of which great quantities were eaten by the negro soldiers. The writer believes that there was a possibility of the sugar having been infected with the virus by means of the common house fly, which, as he says, shows a partiality for alvine dejecta and saccharine substances. From the data collected Dr. Homan arrives at the conclusion that this particular choleraic outbreak was due to the drinking of unboiled river water polluted by St. Louis sewage. The question arises, Why was the mortality among the soldiers who had eaten the sugar so particularly excessive? I think that we are able to assign to the sugar in this incident a different and perhaps better-defined rôle. It is a well-established fact that a "catarrhal" stomach will carry on the inversion of cane sugar into dextrose much more readily and rapidly than a healthy viscus. This is due to the mucus, which contains a special ferment sometimes called invertin. The introduction into the stomach of excessive quantities of sugar will invariably produce an active secretion of mucus, thus furnishing the proper means for its own digestion. The soldiers who yielded to their inborn craving for sweets succeeded in producing an artificial catarrhal condition in their stomachs. The large amount of alkaline mucus offered no bar to the cholera virus taken in with the water, possibly drank in larger quantities after the sugar meal. In the absence of the inhibitory powers of a normal gastric juice the virus may have started upon its pernicious activity within the walls of the stomach, bathed as they were in ropy, alkaline mucus. But, even assuming that this did not take place in the stomach, we must admit that the condition of that organ was most favorable to the passage of the totally unmodified virus into the small intestines which, by the very nature of their secretions, invite the development of microbiotic changes.

Edward C. Runge, M. D.

UNTOWARD RESULTS OF HYPODERMIC INJECTIONS.

Mendon, Mo., *April 12, 1895.*

To the Editor of the New York Medical Journal:

Sir: I see from the *Journal* of the 6th inst. that Dr. E. H. Wilson, chief bacteriologist of the Brooklyn board of health, has examined antitoxine from the same lot used in the Bertha Valentine case, and reports it free from deleterious ingredients. As the Brooklyn case of death from the antitoxine has caused quite an amount of comment, with your permission I will report a case which has been under my observation that may throw some light on that case. I have a patient who is an habitual user of morphine sulphate, using about eight or nine grains a day, hypodermically. The patient is about thirty-nine years of age, and, considering the amount of the drug he uses, is in robust health and seems to suffer no inconvenience from the use of the drug, except when he introduces the needle in certain regions of his body, when he suffers the most intense agony, which I will now describe.

I have been called to see him on four or five different occasions. Within five minutes after introducing the hypodermic needle in the region of the musculo-spiral nerve in the arm or the external cutaneous in the thigh he would experience a most intense itching and pricking sensation all over his body, the skin over the entire body would become intensely red and hyperæmic, the brain would become greatly congested, and the pupils widely dilated. These phenomena would last about eight or ten minutes, during which time the itching and pricking sensation would be so intense that the patient would be almost in a frenzy, scratching and clawing himself to get relief. The cerebral congestion would be severe and, as I stated before, the pupils widely dilated. This would happen only when he introduced the hypodermic needle in a particular place, either in the arm or in the thigh, in the region of the nerves mentioned, as near as I could judge. The use of the needle at other times would cause no inconvenience whatever. I am convinced that the same amount of brain congestion that this patient suffered from, in a weak, anæmic person, whose blood-vessels had lost their tone, would result in apoplexy. My patient would state that his head felt as if it would burst open, and to relieve the intense pain in the head, due to the great influx of blood, I have had to make pressure on the carotid arteries. This is a plain statement of facts without any coloring, and may throw some light on the Brooklyn accident.

W. W. Warinner, M. D.

ANOTHER CASE OF REMARKABLE FORTITUDE IN BREAKING THE MORPHINE HABIT.

State Hospital, Morganton, N. C., *March 8, 1895.*

To the Editor of the New York Medical Journal:

Sir: We had in this hospital some years ago a companion case to Dr. Hughes's, reported as Predominance of Mind over Matter.

A young woman belonging to a family noted for their strong opinions and unswerving adherence to the course which they thought proper and right, twenty-seven years old, the wife of a physician, himself a user of morphine, was admitted as insane, her eccentric nature having become more pronounced on account of her habit.

She had been using morphine by hypodermic injection for three years, with marked mental symptoms for some months previous to admission. The amount could not be ascertained, but must have been several grains daily.

One of my first professional services to her was to open an abscess on her arm, due to hypodermic injection, and then I saw the remains of scores of punctures on both arms.

When accused of using morphine she denied it and said the abscess had resulted from a dose given by hypodermic injection to revive her from a faint.

While she was unquestionably insane, there was no loss of memory, her relations in every-day life were much as any sane person's would be, and she was abundantly able to call for anything she wanted.

With the idea that she possibly had morphine concealed and would call for a dose before her physical condition demanded it, I stimulated her freely and entirely withheld morphine until she should "weaken."

She suffered all the tortures that reformation from drug habits entails, but until this day she has not called for a dose, and denies the habit.

She made a mental recovery; for several years has been at home and, except for inborn eccentricity, is still well and so far as known has not resumed the use of morphine.

Isaac M. Taylor, M. D.

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of February 13, 1895.

(*Concluded from page 381.*)

Rapid Speech Development in an Adult following an Operation for Tongue-tie.—Dr. G. Hudson Makuen presented a patient, a young man nineteen years of age, a farmer, who, up to within eleven months, had been utterly unable to use articulate speech in a manner which could be understood. He had been examined by local physicians and had been made to believe that his trouble was of central or cerebral origin, and that nothing could be done for him. The feeling that he was thus cut off from this chief means of communication with his fellows had completely disheartened him.

He had attended public school with other boys, and with the aid of his friends at home had managed to make some progress in arithmetic and to acquire a very slight theoretical knowledge of our language. He had seemed to understand a little ordinary conversation, and had learned easy lessons in history and geography by having them read to him. He would attempt to talk and recite in school, but his teachers had to guess, for the most part, at the meaning of his jargon. The speaker did not recall a single word that was at all intelligible. The first time he had gone to Dr. Makuen's office he had not been able to make the conductor on the train understand the name of the station at which he lived, and after frequent attempts he had been obliged to write it out, which he could do very imperfectly, for his spelling was almost as bad as his speech.

With a history of this kind, and being deprived of that greatest of all means of mental development—speech—we would be prepared, the speaker said, to believe that the patient had acquired a reputation, even among those who knew him best, for listlessness and stupidity. Indeed, his aunt, with whom he had gone, had given up all hope of making anything of him; but the boy, discouraged as he was, had seemed determined to make one more effort, and he had been thoroughly in earnest.

Upon examination of his vocal and speech organs Dr. Makuen found only a slight nost-nasal catarrh and some little hypertrophy of the faucial tonsils. Of course, he thought immediately of the probability of the patient being tongue-tied, but the aunt assured him that there was nothing of the sort. He found, however, that the patient could protrude the tip of the tongue scarcely beyond the outer margin of the lips. The tip had seemed a full inch or more too short, and, strange to say, the frenum had not appeared to be a very decided factor in holding it down or back, for in his attempts to protrude the tongue the frenum had not been greatly stretched. The trouble had seemed to be a muscular one, and this the speaker believed to be the case. The anterior fibers of the geniohyoglossus muscle had been too short, and had prevented not only the protrusion of the tongue but any other free action of that member. The patient could elevate the back part of the tongue and make the hard G sound or the NG sound, but he could make no sound whatever which required the placing of the tip of the tongue to the roof of the mouth or the upper teeth. He had made the K sound for T and hard G sound for D. As an example, he said "ik" for "it," and when he had been asked about his parents he had said they were "gay"—meaning that they were dead. Furthermore, there had seemed to be no method in his speech; it had been a mere jumbling of inarticulate and unintelligible sounds, and the expression of his face had been in perfect harmony with his speech—vacant, staring, meaningless.

The boy having been somewhat delicate, and his friends having decidedly opposed operative measures, the cause of the trouble having been doubtful, the speaker decided to study the case carefully before giving an opinion or recommending methods of treatment. He had given him some vocal exercises for a few days and had watched the results, after which he had clipped the frenum of the tongue well back.

He had then put him in the hands of a teacher, who had given him, under his direction, several hours' vocal drill each day for several months, during which time he had made considerable improvement in sounds and words which did not require free action of the tip of the tongue. By that time Dr. Makuen had been convinced that the trouble had been entirely a local one, and that the boy was of more than average intelligence and well worth developing. He had then decided to divide the anterior fibers of the geniohyoglossus muscle, and thus try to give to the tongue the necessary freedom of action. His people would not give their consent to etherization, for they had been skeptical as to favorable results from any measures whatever. The boy, however, had been desperate, and would submit to anything which promised relief. The speaker had taken the matter into his own hands, therefore, and with cocaine anæsthesia he made an incision under the tongue of three quarters of an inch in the antero-posterior direction and one inch and a half from side to side. There had been considerable bleeding, which had been easily controlled, and, of course, there also had been some pain.

Each morning for five days thereafter, Dr. Makuen had broken up little adhesions which had formed, and had practiced slight lingual traction. On the morning of the sixth day the patient had been in a great state of excitement, and had complained of much pain, which he had referred to the region of his tongue and throat. The tongue had been greatly swollen, filling the entire mouth and protruding between the lips. He had had a temperature of 103°. The larynx had become involved to the extent of threatening suffocation, and the speaker had thought it would surely be necessary to open the trachea, which he had made all preparations to do, but after succeeding in giving him a brisk purge the inflammation had gradually subsided and the breathing had become less labored. The patient had been confined to bed for ten days, after which time he had practiced frequent lingual traction and vocal exercises directed toward a free action of the tongue. His improvement from that time on had been most wonderful.

Dr. THORINGTON said he would like the patient to pronounce the words anthropological and ethnological. The patient repeated them distinctly.

Dr. G. G. DAVIS said that it was an extremely interesting case, and an instructive one. As regarded the relative parts which the operative procedure and the painstaking instruction had played in bringing about the result, it would be extremely difficult to decide which of them had contributed the most. The part that the tongue played in speech was uncertain, and he doubted if it was ever very important. Of course, in a person who had talked, and then had been deprived of his tongue or part of his tongue, speech was still intelligible; but whether an individual who had had the tongue removed in infancy would learn to talk was indeed a question. In this case there might have been some anatomical condition that would cause limitation of movement of the organ, or acted as an obstruction to prevent his learning to speak, until, later in life, he had been able to undergo the systematic instruction which Dr. Makuen had ordered for him, which might in itself be instrumental in producing speech. He regretted that these means for overcoming defects of speech were not better known than they were among physicians. The simple division of a tendon might be followed by elongation; but in the case of the tongue the resulting scar tissue might restrict its movement still further. In this case there was a practical demonstration that the tongue was more movable. The report of this case was an encouragement to others to repeat this method in similar cases. He did not think that it was extremely rare to find cases where no device was able to afford relief; this was so where there was difficulty in pronouncing those sounds which were produced by the tongue held in contact with the roof of the mouth, it being sometimes impossible to place the tongue there.

Dr. Makuen said the remarks of the last speaker were very pertinent to the question. He could not say which had been the greater factor in the development of speech in this case—the instruction or the operation. He was certain, however, that the one would have been of little value without the other, for during the three months immediately preceding the operation he had given the patient very careful drill, which had resulted in improvement on certain words, but in no improvement whatever on all those sounds which required a free action of the tip of the tongue. It had only been after the operation that he could give these sounds at all. The shortening which usually followed cicatrization had been prevented by free exercise of the tongue and by frequent traction. He could protrude his tongue three quarters of an inch further than before the operation, and he had acquired great facility in articulation.

Varicella Complicated with Gangrene of the Scrotum.—Dr. Charles D. Spivak read a paper in which he said that Jonathan Hutchinson had been the first to draw the attention of the medical profession to a complication of varicella characterized by the development of gangrene of the skin and deeper tissues at the site of the eruption. The rarity of the complication in general, and the exceptional features of the case which had come under his treatment in particular, justified him, he said, in reporting it.

The patient had been a boy of Russian parentage, aged two years, whose father and mother were healthy, with no scrofula or tuberculosis in the family, and with five other children all well and healthy. He had had no serious illness previous to the attack of chicken-pox. As the speaker had seen the patient for the first time only on the eighth day of the disease he had had to rely upon the data furnished by the parents, who had proved to be tolerably good observers and quite reliable. On November 25, 1894, the appearance of the chicken-pox had been noticed for the first time; on the 26th the child had become restless and had had fever; on the 27th the fever had increased, the child had been delirious, and the scrotum had become red and swollen. This state had continued until the 30th, when the swelling had extended to the left inguinal region; a black spot, the size of a pinhead, had appeared on the left side of the scrotum, and soon several others had formed a circle around the original one and had coalesced. On the following day another black spot had appeared, a little further to the left on the scrotum, and "before one had time to look at it," as the parents had expressed themselves, the process of deep ulceration and "eating up" had commenced. On December 3d Dr. Spivak had seen the child for the first time. The child had been well preserved and plump, as had been seen on a photograph and by its appearance, and he had been somewhat irritable. The penis, the scrotum, and the left inguinal region had been very much swollen and tender. The left side of the scrotum had been covered by blackish, muddy-looking crusts and detritus covering about two thirds of it and passing over the rhaphe to the right side. The smell had been very offensive. The crusts and detritus had been carefully removed and the tunica albuginea of the left testicle had been exposed to the view, thus showing that the gangrenous process had destroyed not alone the integument but also the dartos, the external cremasteric, and internal fascias, and the tunica vaginalis. There had been a distinct areola around the ulcer. The existence of pus in the inguinal region had easily been demonstrated by its fluctuation and also by the oozing from a very small spontaneous opening that had been found about half an inch from the scrotum. The temperature had been 101·6°; pulse, 110. Pressure over the bubo had given pain, but the handling of the ulcer had been almost painless. Dr. Spivak had washed the parts with bichloride and had applied an iodoform-gauze dressing and a bandage. On the following day, when the bandage had been removed, the ulcer had been found to present a somewhat better appearance, but was still angry-looking and covered with pus from the oozing aperture. The child had been anæsthetized by Dr. Rachel Skidelsky, and introducing the groove director through the opening the speaker had laid open the inguinal region throughout its length, as was seen on the photograph. He had cleansed the wound thoroughly and packed it with iodoform gauze. (At this juncture the photograph had been taken, which showed the incision with the packing in it; the left testicle had been exposed, and there were many spots of dried-up vesicles all over the body.) The ulcer had been dressed with bichloride gauze saturated in hydrogen dioxide, and a T-bandage had been applied. The ulcer had required a good deal of trimming of the dead tissues. Dr. Spivak had ordered two grains of quinine to be given in the evening and two grains in the morning. At that time he had noticed that three children in the same family had varicella in different stages of development. There had been no complications in the other cases.

On the following day the temperature had fallen to 99·2°; the child had slept almost the whole night, the first time since it had been taken sick; the ulcer and wound had been clean and the gangrenous process had been checked. The local treatment had been continued in the same way during the entire period of the regeneration of the scrotum, which had taken about thirty-five days. The repair was complete and admirable, as could be seen on the child, leaving only a star-shaped cicatrix. No internal treatment had been needed after the third day.

Dr. J. Abbott Cantrell said he regretted that Dr. Spivak had not given more of the history of his case. When Hutchinson had given the name varicella gangrænosa to this affection he had stated positively that it did not occur with any other disease than varicella, but since that time he had somewhat changed that opinion. Besides being witnessed in connection with varicella, it had been seen with miliaria rubra and lichen planus by Crocker and with purpura by Moore and Büchler. In addition to this it had been witnessed as an independent eruption by Crocker, Payne, Abercrombie, Bowley, and Elliot.

Witley Stokes had recorded it, in 1809, as a pemphigus gangrænosus; Bazin had also thought it to be a pemphigus; and Carpenter had referred to a case under the title of pemphigoid varicella. Simon had recorded an example under the name of multiple cachectic gangrene.

Its usual seat was at or near the buttocks, the inner and posterior portion of the thighs, although it might be witnessed on any portion of the body; thus, Büchler has seen it affecting the mastoid process, the ear having become involved in the destructive process later. Jamieson had witnessed a case affecting the head, the face, the back, and the right thigh.

It began as an erythematous spot, scarlatiniform in character, and this had been seen in Stanifooth's case to precede any other change by twelve hours. This was followed by a papule, a vesicle, a vesico-pustule, or a pustule. These, one and all, rapidly changed into a pustule, and after it reached the size of a split pea, or even before it became of that size, it ruptured, and the formation of a crust resulted. The lesion at this time was surrounded by a reddish or pinkish-red, or even a livid zone. In a short time the crust began to separate, and after its completion the process generally terminated, although this was not always so. When the crust was removed three was an ichorous, ashen-gray mass or purulent secretion at the bottom of the ulcer, which had a ragged floor, the ulcer looking like a punched-out sore—in fact, resembling the condition we had when a vaccination pustule was at its height. When the disease began, or was in connection with a vaccination, it was witnessed first on the same arm, but not at the point of vaccination. Constitutional taint seemed to have an influence upon the aggravation of the disease, but this was denied by Hutchinson. Thus, in Payne's case the child had died of acute miliary tuberculosis; Abercrombie's had shown double pneumonia, with recent pleuritis of one side; Howard's had shown dullness on percussion, the little patient having died of pyæmia, and the autopsy had revealed abscesses in one lung, while two ounces of pus had been taken out of the pleural cavity; in Bowley's case the patient had died of convulsions on the day after discharge.

The disease was supposed to be due to a parasite, although a constant germ had not as yet been demonstrated. Ehlers had found the *Bacillus pyocyaneus* in two cases, Kallinger had found the *Staphylococcus cereus albus* in one, and still others had been found. The prognosis was favorable without the intervention of some complication, such as lung troubles; syphilis had a deleterious effect. The treatment must be upon the strictest hygienic basis; the patient was to be supported and given tonics as well as the best of food; locally, antiseptics were to be freely employed.

Dr. Spivak said that he had simply reported his own case, and had not intended to review the extensive literature of the cases which he had collected; neither had he wished to discuss the mooted questions in pathology. He reported his case on account of three interesting points: 1. There had been only one lesion in his case, while in all the cases reported hitherto they had been multiple. 2. The size had been unusually large—about the size of a silver dollar in circumference—as could be easily judged from the photograph. 3. There was only one case reported where the genitalia had been mentioned as having been affected, and no distinct reference to the scrotum had been made.

Book Notices.

The Physiology of the Carbohydrates; their Application as Food and Relation to Diabetes. By F. W. Pavy, M. D., LL. D., F. R. S., Fellow of the Royal College of Physicians, etc. London: J. & A. Churchill, 1894. Pp. x-280.

It would be impossible to find a more competent teacher of the physiology of the carbohydrates than Dr. Pavy, who has devoted the labor of his life to the attainment of the knowledge unfolded in the pages of this volume, which must stand as a *magnum opus* of patient, careful, scientific investigation.

The author alludes to the fact that the carbohydrate principles constitute by far the largest portion of organic matter. They have their origin in the vegetable kingdom as a result of the operation of solar influence, and primarily play a part in the scheme of life of the vegetable organism, while secondarily they enter either directly or indirectly into the food supply of animals.

The carbohydrates comprise a class of bodies in which carbon is associated with different proportions of the elements of water, and a basis of classification is founded on the relation existing between the water and the carbon. There are three groups: the amyloses, which present the lowest degree of hydration, and include cellulose, starch, glycogen, and dextrin; the saccharoses, that include maltose, lactose, and cane sugar; and the glucoses, that include dextrose, lævulose, and galactose. Each of these is described, and reference is made to the behavior of sugar with phenylhydrazine, giving rise to the osazones. The transmutation of carbohydrates by increased hydration and by ferment and protoplasmic action is considered in relation to the operations of life.

The author reviews his recently announced discovery of the glucoside constitution of proteid matter, which demonstrated that in the construction of proteid matter by the synthetic power of protoplasmic chemistry carbohydrate matter was a participating agent, and that the latter was susceptible of being liberated again with the occurrence of disintegration.

He shows that it is not true that the liver during life is, as has been alleged, in a more saccharine state than other parts of the system; in the case of muscle the amount of sugar present may be considerably beyond that found in the liver at the moment of death. In reality sugar exists as a normal constituent of all the tissues and organs of the body. He further shows that blood flowing from the liver does not contain more sugar than that flowing to it; furthermore, sugar is present throughout the whole mass of blood. There is no appreciable difference in the amount contained in arterial and in venous blood, and there is not less in the blood of the portal vein than elsewhere. There is no evidence of the disappearance of sugar from the blood in its transit through the systemic capillaries, assumed under the glycogenic doctrine to take place; and, correspondingly, there is no evidence of the transport, as a functional operation, of sugar from the liver to the systemic capillaries.

Referring to his paper, published in 1876, On the Recognition of Sugar in Healthy Urine, Dr. Pavy says to-day that the amount of sugar in healthy urine is in proportion to that existing in the blood of the general circulation; the one is an index to the other.

These studies show that the liver neither forms sugar to be discharged into the general circulation, nor temporarily stores up carbohydrate matter from the ingesta. Its office is an arresting one, furnishing a line of defense against the passage of the carbohydrates in a free state into the circulation. In proportion as the line of defense is ineffectual, sugar will reach the general circulation and then the urine. Diabetes, therefore, consists of a loss, or of more or less impairment, of the power that naturally disposes of ingested carbohydrate matter, and that prevents the latter from reaching the circulation in the form of free sugar. In one class of glycosuria there is a loss or impairment of the power of disposing of ingested carbohydrate matter, and in another there is, in addition to this, an intrinsic condition attended with the splitting up of the proteids of the body, with sugar as a cleavage product. The former may be controlled by dietetic management, the latter only to a partial extent. On the strength of these facts the author suggests rational methods of treatment.

In the last analysis the evidence adduced demonstrates that, as a result of the operations of life, carbohydrate matter becomes transmuted to a lower state of hydration, is applied to the production of proteid matter, and finally is transformed into fat.

This volume is a most valuable contribution to medical science, and will enhance the fame of its author. It deserves the careful study of every physiologist and physician.

A Treatise of the Diseases of the Ear, including the Anatomy and Physiology of the Organ, together with the Treatment of the Affections of the Nose and Pharynx which Conduce to Aural Disease. By T. Mark Hovell, F. R. C. S. Edin., M. R. C. S. Eng., Aural Surgeon to the London Hospital, etc. London: J. & A. Churchill, 1894. Pp. xxiv–720. [Price, 18*s.*]

The first two chapters of this book are devoted to a consideration of the anatomy of the ear. This subject is dealt with with a desirable fullness and clearness, which renders this portion by no means the least valuable part of the book. Chapters III, IV, and V are devoted to methods of examination, and include the various methods in use for determining the hearing power and for inflation of the tympanum. These various methods are discussed in an unusually sensible manner, and throughout the book one is forced to acknowledge that, even if the deductions drawn are contrary to some extent to his own opinions, they rest upon very good reasons. Little need be said in regard to the chapters on diseases of the external ear. If anything new is brought forward here it has escaped the notice of the reviewer, but he has noticed the omission to mention boroglycerin as a means of aborting furuncular inflammation. He can not now recall any place where he has seen it mentioned, but he has long used it with good success. In the chapter on diseases of the nose, pharynx, and nasopharynx a very large amount of space is devoted to adenoid growths, much more than seems necessary proportionately to other diseases, such as atrophic and hypertrophic rhinitis, enlarged turbinated bodies, and spurs of the sæptum, which also are associated with middle-ear disease; but the importance of recognition of these associated pathological conditions is insisted upon. Throughout the chapters on diseases of the tympanic cavity the author gives evidence not only of a great personal experience, but also of wide research. It is evident that he is well acquainted with the advancement made in this country, although he only occasionally refers by name to those who have contributed to the advance on this side of the Atlantic. The chapters on diseases of the labyrinth and auditory nerve likewise show painstaking research and are valuable as presenting the most recent advances in this line.

Altogether the work is one which we can heartily commend as a safe and efficient guide in treating diseases of the ear.

Enlargement of the Prostate. Its Treatment and Radical Cure. By C. W. Mansell Moullin, M. A., M. D. Oxon., F. R. C. P., Surgeon to and Lecturer on Physiology at the London Hospital, etc. Philadelphia: P. Blakiston, Son, & Co., 1894. Pp. viii–176. [Price, $1.50.]

The author states that since he delivered the Hunterian Lectures at the Royal College of Surgeons two years ago, when he criticised the small progress made in the surgery of this gland in comparison with the general advance in surgery, material progress has been made in the field of surgical intervention. This progress he regards as largely due to the renaissance of the old view of the purely sexual character of the prostate.

Dr. Moullin does not believe that enlargement of the prostate requires treatment for its own sake, for there may be great hypertrophy with no physical discomfort; but as soon as the functions of the bladder are interfered with treatment of the hypertrophy is necessary. Delay in such cases affords no advantages, the longer the condition is left to itself the greater the risk of an operation.

The author indicates that the choice lies between the habitual employment of a catheter, the removal of the obstruction by operation, and, when nothing else is available, the formation of another route of exit for the urine, or castration. He concedes that in ordinary cases catheterism is to be preferred, but he lays stress on the fact that habitual catheterism is not a cure for the complaint.

The class of cases in which prostatectomy should be performed includes those in which there are certain anatomical conditions that interfere with the function of the bladder and those in which the catheter has gradually failed to be of service. Where prostatectomy is impracticable an artificial urethra should be made.

The author considers that castration may be of service in cases where everything else has failed.

The volume gives an interesting survey of the most recent knowledge of this important part of man's anatomy.

Methods of Operating for Cataract and Secondary Impairments of Vision. With the Results of Five Hundred Cases. By Surgeon-Captain G. H. Fink, Her Majesty's Indian Medical Service. With Illustrations. London: J. & A. Churchill, 1894.

This little book shows very creditable work by Surgeon-Captain Fink. Its principal object seems to be to bring prominently before the profession a modification of, or rather an addition to, the usual operation—viz., immediate laceration of the hyaloid membrane when this interferes with vision. After the cataract has been extracted it is the author's practice to hold up fingers to be counted. If the patient can not do this, one can see, on examining the eye carefully with a magnifying glass, a diffuse and deep haziness in the center. This hazy membrane he lacerates with a cystotome and always produces clear vision together with a slight loss of vitreous. This operation, he says, is far superior to a later operation for secondary cataract, an operation he very seldom now needs to perform.

Neurasthenia and its Treatment by Hypodermic Transfusions. (According to the Method of Dr. Jules Cheron.) By Ralph Browne, L. R. C. P. Lond., M. R. C. S. Eng., Physician to the Chelsea, Brompton, and Belgrave Dispensary, etc. London: J. & A. Churchill, 1894. Pp. 56. [Price, 1*s.*]

This pamphlet states that hypodermic transfusions of artificial serum composed of a solution of sodium chloride, phosphate, and sulphate have been employed in some thousands of cases without ill effect. But the dose, the method and frequency of administration, and the formula for preparing the serum are not mentioned. The work therefore is useless to any medical man.

Manual of General Medicinal Technology, including Prescription-writing. By Edward Curtis, A. M., M. D., Emeritus Professor of Materia Medica and Therapeutics, College of Physicians and Surgeons, Medical Department of Columbia College, in the City of New York. Third Edition. Conformed to the U. S. Pharmacopœia of 1890. New York: William Wood & Company, 1895. Pp. viii–235.

The author has made this new edition of his very useful little work conform to the revision of the U. S. Pharmacopœia of 1890. The manual throws light on many of the dark places of prescription-writing.

Memoranda and Tables of Human Anatomy. Volume I. Being a Complete Description of the Muscles, Ligaments, etc. For the Use of Practitioners and Students of Medicine. By Justin Herold, A. M., M. D., etc., and Sebastian J. Wimmer, M. A., M. D., etc. With a Preface by Professor James E. Garretson, A. M., M. D. Philadelphia: The Medical Publishing Company, 1895. Pp. xii–7 to 269.

The authors have endeavored to so arrange the muscles, ligaments, etc., that the entire relations of any one set shall be presented on a single page or on contiguous pages. They state that it has been their aim in this systematization and condensation to form, as it were, a framework upon which the more detailed knowledge may be hung. As the author of the introduction says—used for its purpose and being kept in its place, the book is to be treasured as a *vade mecum*.

BOOKS, ETC., RECEIVED.

Index of Medicine. A Manual for the Use of Senior Students and Others. By Seymour Taylor, M. D., Member of the Royal College of Physicians, etc. Philadelphia: Lea Brothers & Co., 1895. Pp. xi–794.

The Treatment of Wounds, Ulcers, and Abscesses. By W. Watson Cheyne, M. B. Ed., F. R. S., F. R. C. S., Professor of Surgery in King's College, etc. Philadelphia: Lea Brothers & Co., 1895. Pp. xii–3 to 197.

The Year Book of Treatment for 1895. A Critical Review for Practitioners of Medicine and Surgery. By Various Contributors. Philadelphia: Lea Brothers, 1895. Pp. viii–490.

The International Medical Annual and Practitioner's Index. A Work of Reference for Medical Practitioners. By Various Contributors. Thirteenth Year. New York: E. B. Treat, 1895. Pp. 648. [Price, $2.75.]

Transactions of the Antiseptic Club. Reported by Albert Abrams, a Member of the San Francisco Medical Profession. Illustrated. New York: E. B. Treat, 1895. Pp. 7 to 206. [Price, $1.75.]

Transactions of the American Pædiatric Society. Sixth Session, held at Washington, D. C., May 29, 30, 31, and June 1, 1894. Volume VI.

The Treatment of Inoperable Malignant Tumors with the Toxines of Erysipelas and Bacillus Prodigiosus. By William B. Coley, M. D. [Reprinted from the *Medical Record.*]

A Bacteriological Study of Oysters, with Special Reference to them as a Source of Typhoid Infection. By Charles J. Foote. [Reprinted from the *Medical News.*]

Ethyl Bromide Anæsthesia in Post-nasal Adenoid Growths. By George Morgenthau, M. D. [Reprinted from the *Journal of the American Medical Association.*]

A Case of Cancer of the Urethra. By Eugene Fuller, M. D. [Reprinted from the *Journal of Cutaneous and Genito urinary Diseases.*]

Remarks on the Treatment of Cystitis. By Gardner W. Allen, M. D., of Boston. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

A New Varicocele Needle, and How to Use it. By W. W. Bowes, M. D., Atlanta, Ga. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

A Case of Idiopathic Atrophy of the Skin. By George T. Elliot, M. D. [Reprinted from the *Journal of Cutaneous and Genito-urinary Diseases.*]

Hysterectomy for Puerperal Septicæmia. Specimens. By J. M. Baldy. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Should Exploratory Incisions be resorted to as a Means of Diagnosis in Obscure Diseases of the Abdominal Cavity? By Milo B. Ward, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Menorrhagia and Metrorrhagia as Caused by Conditions other than Fibroids. By E. L'H. McGinnis, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Puerperal Septicæmia. Abdominal Section followed by Recovery. Abscess in the Right Broad Ligament. By Andrew F. Currier, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Parametritis (or Pelvic Cellulitis); its Pathological Importance and Clinical Significance. By George Tucker Harrison, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Enormous Ovarian Tumor, Two Hundred and Two Pounds in Weight. By T. J. McGillicuddy, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

A Contribution to Demography. By Theophilus Parvin, M. D., of Philadelphia. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Scarlatina and the Streptococcus Infection. By Rosa Engelmann, M. D., Chicago. [Reprinted from the *Journal of the American Medical Association.*]

Contrexeville. By Debout D'Estrees, M. D., Paris. [Reprinted from the *Medical Record.*]

A New Method of Examination and Treatment of Diseases of the Rectum and Sigmoid Flexure. By Howard A. Kelly, M. D., Baltimore. [Reprinted from the *Annals of Surgery.*]

The Operative Treatment of Hernia, with a Report of Two Hundred Cases. By William B. Coley, M. D. [Reprinted from the *Annals of Surgery.*]

Miscellany.

Nervous Disturbance of the Heart resulting from Influenza.—In the April number of the *Practitioner* Dr. A. E. Sansom, of London, publishes an article on this subject in which he remarks that during the febrile period the contractions of the heart are usually quickened, but by no means invariably. The signs and the symptoms, he says, referred to the heart in cases under his own observation have been distributed as follows: In twenty-three cases, pain referred to the heart; in thirty-seven cases, the rapid heart; in twenty-five cases, the irregular heart; in five cases, the slow heart; in ten cases, organic disease of the heart. The latter, as a direct result of influenza, the author believes to be very rare. The specific poison, he says, alarmingly re-enforces pre-existing rheumatic disease. Endocarditis and pericarditis of rheumatic origin may rapidly increase if the patient is attacked with influenza. In very rare cases a septic form of endocarditis has been begun by the acute disease. Acute and subacute inflammations of the aorta, and probably of the pulmonary artery, have been induced in some cases. Dr. Sansom says that he has no evidence, however, that endocarditis (except of the ulcerative form) or myocarditis is produced by the toxic agencies of the disease. Disturbances of the nervous mechanism of the heart, however, are frequent sequels of influenza, and from a series of cases in which such disturbances have been manifested and from the associations with other cases in which there have been incontrovertible signs of disease of the spinal cord, he can not doubt, he says, that the disorders in question have their origin in induced morbid conditions of the medulla oblongata, the nerve elements within the spinal cord, and the sensorium. The pain which seems closely associated with the heart itself may be felt in the situation of the apex, over the anatomical site of the right and left ventricles, over the sternum, or localized in the intercostal spaces, especially the second, close to the sternal border. In some instances there is a sensation of fluttering of the heart (tremor cordis), but in most cases the heart sounds are normal; and the rhythm during the extremity of the pain, as well as at all other times of observation, is quite regular. Very commonly there is a sense of extreme mental apprehension with fear of death. The pain may be continuous for hours, with exacerbations and mitigations, or paroxysmal. In either case it may be of intense severity, and he has had several instances in which it caused complete unconsciousness from syncope. Naturally, he says, the fear of angina pectoris occurs, but, happily, in the great majority of cases there is complete recovery. The signs of high arterial tension are not manifested. A favorable prognosis is, therefore, usually justified, and it is important that this good medicine of hope should be administered to the patient, and that all depressing emotions should be avoided. There may be an error, however, on the other side. It is not correct to call these cases hysterical—the symptoms may occur in the strongest men and in those who present no associations with hysteria. In one case which he observed, that of a lady in whom hysteria might have been suspected from the symptoms, sudden death, preceded by convulsion, took place during the night. His diagnosis was acute or subacute aortitis. The attacks of pain may begin to be manifested very soon after the acute onset of influenza, but in many cases the first symptoms do not occur until after the lapse of several months—at least six months—from the acute attack. Practically we should consider them as neuralgic; they are often attended with distinct signs of neuritis, though the manifestations are periodic and not persistent. The distinction from the dangerous condition of inflammation of the aorta is to be made chiefly by observation of the effect of effort. Usually the patients are able to walk about, and the attacks are not determined by muscular exertion, although movement may aggravate the pain when once established. In aortic inflammation the pain as well as dyspnœa is brought on by even slight movements.

In any case of severe heart-pain after influenza complete rest should be recommended in the early stages of treatment. A hypodermic injection of hydrochloride of morphine (from a quarter of a grain to a third of a grain) may be administered at the situation of the maximum of the suffering, but the precaution should be taken of giving a diffusible stimulant by the mouth shortly before the injection. The author suggests the following formula: Spiritus ætheris, ʒ ss.; spiritus ammoniæ co., ʒ ss.; tinct. sumbul. ʒ ss.; aquæ camphoræ, ℥ jss.; to be taken as a draught before the administration of morphine, and repeated an hour afterward. Once the severity of the pain is thus mitigated, he says, other agents than morphine should be employed. Quinine in doses of five grains dissolved in hydrobromic acid, as before suggested, is often very effectual. If there is any periodicity about the attacks, this dose should be administered about half an hour before the usual period of onset, and repeated at hourly intervals during the painful phase until three or four doses have been taken. Smaller doses are ineffectual. The same precautions as to the administration of stimulant antispasmodics should be taken with quinine as with opium, for quinine may depress the heart. After the administration of quinine in these doses for three or four days there should be a two or three days' interval. When, however, the severity of the pain is broken a dose of five grains once every two or three days is found to be sufficient. For more continuous treatment at the early stages of the painful phase bromide of sodium in doses of twenty grains with three minims of Fowler's solution, dissolved and sufficiently diluted, may be given with advantage three times a day after food. In some cases doses of five grains of iodide of sodium are added with benefit. The bromide should not be given continuously for more than two or three weeks; afterward the alkaline carbonates with the small doses of arsenic may be substituted.

Local treatment, says Dr. Sansom, in the more persistent forms of pain is valuable. Mustard poultices, sprinkled with tinctures of opium, belladonna, and aconite, give relief in some cases. He has used in others a fomentation of lint soaked in a hot solution of salicylate of sodium with much advantage; or an ointment containing twenty per cent. of salicylic acid and ten per cent. of menthol in a fatty basis of lanolin and lard may be rubbed in by a flannel pad over the painful area. In the more chronic cases small oval blisters applied over the intercostal spaces have been efficient. He has also found the constant galvanic current (as from a Schall's six-cell battery, the positive pole placed over the nape of the neck and the negative over the painful site, the applications being for ten minutes twice daily) completely remove the pain.

Abnormally rapid action of the heart may be the immediate sequel of an attack of influenza, or may be manifested some months after the initial attack. In some of these cases palpitations are severe, and the heart's action is made still more rapid by muscular movements or slight causes of disturbance. In very many, however, the abnormally rapid contractions of the heart, habitually over a hundred a minute, are quite unperceived by the patient. In a large number of cases there are some of the associated signs of Graves's disease. One sign, slight in itself, is worth investigation. The patient after the attack of influenza may be observed to present some retraction of each upper eyelid, so that the eyeball seems to be somewhat unduly prominent; when the patient is asked to gently close the eyelids it will be seen that both lids exhibit a very unusual tremor. There are, in fact, slight Stellwag's signs with spasm of the orbicularis palpebrarum. In some instances there are all, or nearly all, the chief phenomena of Graves's disease. Where the lid signs are present, although even in a slight degree, there will usually be found an undue rapidity or an irregularity of the heart's action. In the cases manifesting the rapid heart there are often emotional outbreaks. There may be muscular tremors, flushing, perspiration, and faintness. In many instances there are paroxysmal attacks characterized by flatulence, nausea, gastralgia, and diarrhœa, accompanied by dyspnœa as well as palpitation—a combination which the author terms a "vagus storm," as they seem to imply a disturbance involving all the areas subserved by the pneumogastric nerve

He thinks that the condition of rapid heart after influenza is explained by the effect of the toxines of the microbes upon the nervous mechanism of the cardiac reflex. The vagus-controlling influence is weakened, and the accelerator agencies are relatively in excess.

In the treatment of these cases he believes digitalis and the analogous cardiac tonics to be not only useless but dangerous. The reasoning thus expressed: "The heart's action is rapid, digitalis slows the heart's action; therefore give digitalis," is unsound and unsafe. It seems to him very probable that in these days, when digitalis, strophanthus, and other powerful agents of their class, are readily procured in almost any quantity by the public, are presented in an attractive form, and are swallowed when not prescribed by a qualified medical practitioner, many lives have been shortened. The first indication in treatment is to allay all inordinate nervous perturbation. It is not necessary, save in exceptional cases, to insist on complete rest in bed, but all causes of undue excitement must be avoided. The mixture of sodium bromide with small doses of arsenic, as suggested for the treatment of pain at the heart, is perhaps the most generally useful. During the periods of dyspepsia the alkaline bicarbonates, with bismuth and small doses of dilute hydrocyanic acid, seem to be the best therapeutic means.

For the treatment of the insomnia, he thinks the most useful and least harmful agent is chloralamide in doses of twenty or twenty-five grains administered at bedtime. If this is inefficient, the same quantity of sulphonal may be given. Opium, he says, should be avoided, or, at any rate, reserved for emergencies.

It is to be remembered, says the author, that an abnormal frequency of the cardiac contractions may be continued in a given subject for many years. We feel that such a patient is unstable, although there may be no other notable deviation from health. Treatment by drugs often fails to reduce the rate of the pulsations. He has observed a sufficient number of cases to convince him that in the continuous galvanic current we have a valuable method of treatment for these cases. The current from a Schall's four- or six-cell battery is sufficient. One pole, the anode, moistened with warm water or salt and water, is held over the nape of the neck, and the other, the cathode, is gently pressed into the groove in the neck outside the larynx. The current is allowed to pass for six minutes three times a day, the applications of the cathode being to the right and left sides of the neck alternately. In many cases the effect is quite imperceptible, but in some, even with these weak currents, there are effects upon taste and upon vision (flashes of light, etc.), and often there are prickings of the skin. The rate of the heart's pulsations is reduced, though it must be remembered that satisfactory results are very slow in appearing. There is seldom much improvement in less than six months, he says, but he has seen the best results follow this plan of treatment.

The irregular heart after influenza has associations very similar to those of the rapid heart. The irregularity may be extreme, and yet unperceived by the patient. It is most important that attention should not be drawn to it, for, once observed as a subjective sensation, the previously almost harmless phenomenon becomes a lasting misery. There are with the irregular heart associations with the signs of Graves's disease, with vagus storms, and with multiple neuritis, as with the rapid heart. The most important differences are that the condition of irregularity of the heart's action is much more frequently attended with precordial pain and cardiac discomfort, that it is more apt to be shown in persons of advanced age and of gouty tendencies, and that it not infrequently co-exists with disturbances of the faculty of hearing. The lines of treatment are chiefly those recommended for pain at the heart and for tachycardia.

The treatment for gout, and for dyspepsia in general, becomes in these cases of still more importance than in the former, and judicious management of the naso-pharyngeal passages (whereby reflex causes of irritation are removed), as well as of all forms of auditory disturbance, is to be carried out.

Abnormal retardation of the rate of the heart's contractions (bradycardia) may also follow an attack of influenza, and that immediately or after the lapse of several months. The slowing of the heart may be paroxysmal or persistent. Dr. Sansom has observed a case in which a pulse habitually of 72 a minute was reduced to 48 during periods of severe epigastric and abdominal pain, recurring every afternoon for three or four hours for the space of a week. After the pain had disappeared the pulse rose to a rate of about 90. Treatment with phenacetine and camphor, with local warmth and counter-irritation of the epigastrium and abdomen, is successful. Aperients and so-called appeals to the liver are seldom called for. If there is constipation, a dose of castor oil or an olive-oil enema is to be recommended.

A more permanent bradycardia is much more serious. The author has known a pulse of 19 a minute to follow an attack of influenza. During long observation of the patient in hospital, the pulse rate never rose above 36. The man was discharged from the hospital in fair health, but died suddenly at his home soon afterward. The only drug which causes any increase in the heart rate in such cases, according to his experience, is belladonna. The tincture may be given in doses of ten minims three times a day, or the extract in half-grain doses. The administration should be suspended for one or two days at the end of each week. Massage and graduated muscular exercises are useful; but it must be realized, he says, that the condition of very slow heart is one of peril.

The Employment of the Membrane of a Hen's Egg in Grafting.—In the *Journal des praticiens* for March 23d there is an abstract of an article on this subject which was published in the *Archives de médecine militaire* for March, 1895, in which the author, M. Amat, gives an account of the case of a young boy whom he had treated for a large burn caused by boiling water in the dorso-lateral region of the right foot. Repair was slow, and the author advised Reverdin's and Thiersch's method of skin grafting, but the family was very much opposed to it. M. Amat then thought it would be well to employ the exceedingly vascular internal layer of the membrane of a hen's egg. He made the attempt and obtained successful results. In 1888 and in 1893 he had the same success in the treatment of burns on the arm, the back, the feet, and the leg. In summing up his observations and those of others M. Amat found that good results had been obtained in nine cases and failure in seventy-four cases, as regarded the anaplastic value of the membrane of the shell.

These favorable results, says the writer, may be attributed to the "action of vicinity" of the graft on the evolution of the embyronic tissue, and not to its nature. There are therapeutic indications for its employment, especially in children, women, and nervous persons. The technique of this operation is as follows: 1. The membrane should be taken from a very fresh egg, as physiological observation has shown that the latent life of this membrane is then more active. 2. Grafting must not be done until the dressings have suppressed the suppuration and provoked a healthy growth. Previously to the transplantation, contact with the air must be avoided by a thick dressing of gauze saturated with a carbolic-acid solution. 3. Take a very fresh egg, break it in the center, empty it of the contents, and seize the membrane with a mouse-tooth forceps at the large end of the egg—that is, the internal layer of the membrane of the shell. 4. This layer is cut into strips about four or five millimetres in width and of the same length. These are applied on the wound with the point of a pair of scissors, and laid on their albuminous surface. 5. They are applied at a distance of from twelve to fifteen millimetres and are covered with a small square of tin foil and then by a dressing of gauze saturated with a solution of carbolic acid.

This heteroplastic procedure, says the writer, is worthy of attention, especially from practitioners who do not always have at hand the proper material for "inter-human" or "inter-zoo-human" heteroplasty. From this point of view it is interesting to make a trial of this procedure in rural practice.

The Comparative Value of Trional, Chloralose, and Somnal.—The *Presse médicale* for March 23d publishes an article in which the writer refers to the recent researches of a Russian physician, M. Khmelewsky, who has studied the comparative value of these drugs and observed their action in lunatics, in neurasthenics, and in healthy persons suffering from insomnia. In France also, he says, the new hypnotics have been the subject of interesting works, and at the last meeting of the *Société médicale des hôpitaux* M. Galliard made an important communication in regard to trional. With regard to the harmlessness of this drug, says the writer, there are various opinions, as serious troubles have been observed after a prolonged use of it. To avoid its accumulation M. Khmelewsky gives it at intervals of two days, and not more than thirty grains a day. The hypnotic effect varies according to the class of patients. In those who have no psychical disorders a dose of from twenty-two to thirty grains is sufficient to produce a quiet sleep; this dose gives rise immediately after its administration and when the patient awakes to the same troubles that sulphonal does, but it never causes circulatory, respiratory, or digestive troubles, although in some cases its employment has been prolonged for a year, and in this respect it has a real advantage over sulphonal. In lunatics suffering with insomnia and in those with chronic psychical disorders it acts better; in all other cases, however, it acts slowly, often not until the following night. It always quiets maniacal excitement and alcoholic delirium; but it has a very bad action in melancholia and in hypochondria, as it increases the nervous depression. It must not be given, either, in cases of cerebral neurasthenia, as it accentuates the atony and the depression. Although trional is eliminated more rapidly than sulphonal, it may, however, become accumulated in the organism and cause serious troubles, although, if precaution is taken not to employ it continuously, but at intervals of two days, there is nothing to fear from its use, and it may be given in even stronger doses than from fifteen to thirty grains, especially in delirium tremens, where it produces very good effects.

Chloralose presents one very important defect, and that is that it occasionally provokes toxic symptoms which manifest themselves by an exaggeration of the reflex excitability of the medulla amounting almost to convulsions; in addition to this it is very difficult to decide upon the proper dose, as its action varies not only in different persons, but even in the same person. It seems, however, from observations made by M. Khmelewsky in cases of different forms of lunacy and in others of psychical troubles, that frequently the dose of eight grains is sufficient to produce quiet sleep. In cases of secondary psychosis without much agitation the hypnotic effect may be obtained with six grains. If the dose of ten grains is exceeded, toxic symptoms are observed in the majority of cases and in subjects, too, whose nervous system is normal. These symptoms may appear also after the use of smaller doses in weak, hysterical, or alcoholic persons. In other forms of psychical or nervous disorders doses of from four to eight grains of chloralose rarely give rise to accidents. These toxic symptoms are convulsions more or less generalized, and they are accompanied by involuntary emission of urine; but, notwithstanding their apparently alarming character, they disappear rapidly and do not give place to any serious or lasting nervous troubles or to any painful sensations.

Somnal, says the writer, has been recommended by some German authors, and M. Marandon de Montyel, in the *Annales médico-psychologiques* for August, 1893, also recommends its employment, from which he has obtained excellent results in patients affected with acute melancholia. Not only has it produced sleep, but even recovery after three or four weeks of its daily employment in doses of from seventy-five to a hundred and five grains. In other subjects somnal provokes a certain degree of intoxication before sleep, agreeable dreams during sleep, and a slight excitation and gayety on awakening.

Khmelewsky has endeavored to verify the results obtained by M. Marandon de Montyel, and has found that there is a very marked amelioration in cases of melancholia. In healthy subjects doses of from thirty-eight to forty-five grains give rise, at first, to a slight intoxication; half an hour after its administration sleep follows, although it is often interrupted. From forty-five to sixty grains produce very profound sleep. On awakening, there is no disagreeable sensation, as is the case when trional and sulphonal are used. M. Khmelewsky has not observed any particular gaiety or excitement in the patients, as M. Marandon de Montyel had alleged. In melancholia, as well as in simple insomnia, says the writer, somnal always acts better than any other hypnotic, for not only does it induce an agreeable and profound sleep, but it is not accompanied by disagreeable subjective symptoms on awakening; it causes no depression, as sulphonal and trional do; it does not give rise to the motor troubles so frequently seen after the use of chloralose; and it never produces cardio-pulmonary accidents. It is only in cases of gastro-intestinal disorders that the use of somnal is contraindicated, as it may aggravate dyspepsia and diarrhœa.

It is interesting, says the writer, to compare M. Khmelewsky's conclusions in regard to trional with those of M. Galliard, bearing in mind the fact that the observations of the Russian physician relate principally to lunatics, while M. Galliard's were among subjects attacked with acute or chronic tuberculous disease, those with cardiac affections, etc., who were suffering with insomnia.

Both M. Khmelewsky and M. Galliard were of one opinion in regard to the harmlessness of trional: that it did not provoke any disorders of the circulation, the respiration, or the digestion, and that the sleep it produced was peaceful and without dreams. They differed, however, in regard to the awakening, which, according to M. Khmelewsky, is often painful; on the other hand, M. Galliard maintains that it is often agreeable and rarely painful. They also differ as to the rapidity of its action. M. Galliard says that sleep is produced in from twenty to twenty-five minutes after its administration, while, according to M. Khmelewsky, it takes from two to three hours (in excited patients, it is true), although the doses given are large, from twenty-two to thirty grains.

With regard to chloralose, says the writer, one is impressed with the size of the doses employed by M. Khmelewsky, who gives them without fear of serious toxic accidents. While bearing in mind the idiosyncrasies relative to this hypnotic, not only in different subjects, but in the same subject under different circumstances, he speaks casually of doses of eight or ten grains or more.

The practical conclusion, says the writer, that may be drawn from the discussions which followed the communication of these observations is that, if good results are to be obtained from the use of chloralose, it must not be administered except in very moderate doses, beginning with a grain and three fifths and increasing them progressively from two grains and two fifths to three grains and a fifth.

The Association of Military Surgeons of the United States.—The fifth annual meeting will be held in Buffalo on May 21st, 22d, and 23d, under the presidency of Surgeon-general George M. Sternberg, of the army. The programme includes the following addresses and papers: An Address of Welcome to the City of Buffalo, by the Hon. Edgar B. Jewett, of Buffalo; An Address of Welcome to the State, by the Hon. Levi P. Morton, of New York; An Address on Behalf of the Medical Profession, by Dr. Roswell Park, of New York; The President's Address, by Dr. George M. Sternberg, U. S. Army; The Report of the Committee of Arrangements, by Dr. Albert H. Briggs, N. G. N. Y.; A Report on the Status of the National Guard, by Dr. Nelson H. Henry, N. G. N. Y.; Experiments Illustrating the Degree of "Powder Burn" as Modified by the Distance of the Object, Size, and Conformation of the Bore, Amount and Standard of the Powder, and Other Practical Demonstrable Causes, by Dr. Louis A. La Garde, U. S. Army; The Location and Removal of Missiles from the Cranial Cavity, by Dr. George R. Fowler, N. G. N. Y.; A Discussion of the Report of the Committee on "Litter," by Dr. John Van R. Hoff, U. S. Army, and Dr. E. T. T. Marsh, N. G. N. Y.; Ambulance Construction, by Dr. Dallas Bache, U. S. Army, and Dr.

Charles R. Greenleaf, U. S. Army; Conservative Surgery on the Battlefield, by Dr. Nicholas Senn, Ills. N. G.; The Relation of Concentrated Food to Active Service Demands, by Dr. Charles Smart, U. S. Army; The Location of Sites for and the Construction of Military Posts in Relation to Proper Sanitation, by Dr. Dallas Bache, U. S. Army; The Relation of Naval Architecture to Proper Sanitation, by Dr. J. R. Tryon, U. S. Navy; On the Value of Bromine in Military Surgery, by Dr. M. O. Terry, State of New York; The Handling and Care of the Wounded on Shipboard, by Dr. A. C. H. Russell, Dr. E. R. Stitt, and Dr. A. M. D. McCormick, U. S. Navy; The Post Exchange from a Medical Standpoint, by Dr. Philip F. Harvey, U. S. Army; Infected Bullets, by Dr. Louis A. La Garde, U. S. Army; Fifty-two Amputations of the Thigh, by Dr. John D. McGill, N. G. N. J.; Instruction of the Hospital Corps, by Dr. H. S. Turrill, U. S. Army; Upon the Surgeon General of the Militia, by Dr. George Cook, N. G. N. H.; Field Hospital Service, by Dr. Dallas Bache, U. S. Army; Some Experimental Work with the New Ball, by Dr. J. D. Griffith, N. G. Mo.; Gunshot Wounds of the Kidneys, by Dr. A. L. Wright, N. G. Iowa; On the Travois Litter, by Dr. Wladmir F. De Niedman, N. G. Kan.; Details Regarding the Medical Service of the National Guard of the State of New York during the Buffalo Strikes of 1893, by Dr. Lewis Balch, N. G. N. Y.; Details Regarding the Medical Service of the National Guard of the State of New York during the Recent Brooklyn Strikes, by Dr. William E. Spencer, N. G. N. Y.; Details Regarding the Medical Service of the National Guard of the State of Illinois during the Recent Chicago Strike, by Dr. Charles Adams, Ills. N. G.; Method of Caring for the Wounded on the Field and in the Hospitals of the Chinese and Japanese Armies, by Dr. C. U. Gravatt, U. S. Navy; A Consideration of Scorbutic Manifestations in Young Subjects, by Dr. John C. Wise, U. S. Navy; Asepsis in Military Service, by Dr. Eduard Boeckmann, N. G. Minn.; A Medical Officer in the Volunteer Army, by Dr. F. W. Byers, State of Wisconsin; The Merriam Pack, by Dr. Lewis Balch, N. G. N. Y.; Measures for the Prevention and Suppression of Dangerous Contagious Diseases in Garrison and in the Field, by Dr. H. Lincoln Chase, Mass. V. M.; The Effects and Treatment of Heat and Sunstrokes at Camps of Instruction, by Dr. Orlando J. Brown, M. V. M.; The Mental Evolution of the Citizen-soldier, by Dr. Charles W. Galloupe, M. V. M.; A Report on the Diagnosis Tag for Field Use, by Dr. William H. Forwood, U. S. Army.

The Advantages of Amputation without the Use of a Tourniquet when the Vessels are Atheromatous.—At a recent meeting of the Philadelphia Academy of Surgery Dr. De Forest Willard read a paper in which he said that the disadvantages of the use of the tourniquet when the vessels were atheromatous were obvious. The constriction not only caused minute fissures in the walls of the vessels, but it might even fracture them, and in either case it tended to develop arteritis, subsequent loss of vitality in the flaps, and secondary gangrene. At the same time the patients presenting this condition were frequently old and feeble persons who were seriously exhausted by the local condition of gangrene, presenting other evidences of obstructed vessels, and could illy afford any loss of blood.

Gangrene occurred most frequently in the feet and legs, and for such a condition amputation in the neighborhood of the knee joint, or at the thigh, was advisable, since after leg amputations the diseased conditions frequently returned.

Amputation through the knee joint could be performed with less hæmorrhage than at any other portion of the limb, since in the neighborhood of the knee all the vessels in front were small and could be readily caught with hæmostats as the anterior skin flap was cut. The tendo patellæ and the lateral and posterior ligaments could all be divided without serious hæmorrhage. We then had the limb hanging by the posterior bridge of soft tissues, which bridge contained the large vessels, and could be easily caught by the fingers of an assistant; in fact, it was now a perfectly simple matter to expose the popliteal artery and to test its pulsation to discover whether it was actually pervious, then to expose it just enough to carry around it a bundle of catgut ligatures, four or five, which ligatures were tied just sufficiently tight to bring the inner coats of the vessels together and not to crush them.

Sometimes the popliteal artery would be found thoroughly plugged, making it necessary to work up in the posterior flap for a considerable distance before a pervious vessel would be found.

The popliteal having been tied, the flap was firmly grasped to control the smaller arterial branches, and the posterior flap quickly cut of the desired length. The operation was practically bloodless.

Should the artery be impervious, it might be necessary to do an amputation higher than the joint itself. The tissues now could be pushed back and the periosteum divided above the condyles and stripped back from the femur to the desired distance without loss of blood and without injury to the soft tissues. The femur was then divided opposite the point of ligation and the wound dressed antiseptically.

By thus stripping back the tissues subperiosteally an amputation in the lower third of the thigh could be performed with but little loss of blood and without injury to the vessels by any form of constricting band. It was a plan equally well adapted to traumatic cases with atheromatous vessels. The knee joint region should then be the site of election. A broad ligature loosely tied was the best.

In the discussion Dr. L. W. Steinbach said he thought that it had been an accepted method among surgeons not to use the tourniquet in cases of atheroma. While agreeing, therefore, with Dr. Willard, it seemed novel that he should call attention to it. He had used the broad band of the Esmarch apparatus in amputations of the leg for gangrene. In a recent case he had had considerable difficulty in finding contracted vessels, but the patient had made a good recovery. In one case he had not even used the precaution of employing the Esmarch, and had had the vessels compressed by the fingers of an assistant, and the patient had recovered.

Dr. Willard said that the point which he had intended to accentuate was that an amputation could be done through the knee joint without loss of blood, even though no constricting band was used.

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 18th inst., a paper entitled Further Improvements in Microscopical Technique, to be illustrated with apparatus and lantern slides, was to be read by Dr. Henry G. Piffard.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 24th inst., a paper entitled Mycosis of the Pharynx will be read by Dr. Jonathan Wright, of Brooklyn. Cases will be presented and instruments and apparatus exhibited.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 25th inst., Dr. Grace Peckham-Murray will read a paper entitled Twin Pregnancy with Blighted Fœtus, illustrated by a case, and Dr. Edward P. Davis, of Philadelphia, will read a paper the subject of which is to be announced. Cases will be reported and specimens and instruments exhibited.

THE NEW YORK MEDICAL JOURNAL, APRIL 27, 1895.

Original Communications.

NOTES ON THE PREPARATION OF DIPHTHERIA ANTITOXINE.*

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In view of the present importance of diphtheria antitoxine and the somewhat complex character of the process involved in its preparation, I have thought that it would be useful to describe the process as simply as possible, and to illustrate it with results of my own work in this field.†

General Statement.—Animals can be artificially infected with the diphtheria bacillus or poisoned with its toxine. This infection and this poisoning can be regulated so as to render the animal very sick, but not fatally so. This is accomplished either by administering a single dose or by beginning with an extremely minute dose and repeating after intervals of rest with gradually increased doses. When these animals have fully recovered, they are found to have acquired a tolerance of a fatal dose of the diphtheria toxine or culture. They have acquired an immunity against diphtheria.

The serum of the blood of these animals which have developed this immunity, when mixed in a given proportion with the toxine of the diphtheria bacillus, renders the toxine harmless. This agent, contained in the serum of the blood of animals rendered artificially immune, is called "antitoxine."‡

If this serum containing antitoxine is injected into other animals, it protects them against diphtheria. The quantity of the serum required to do this bears a certain definite proportion to the weight of the animal.

Specimens of serum obtained from different animals, which have been more or less sick, possess different protective powers. Some, by the administration of a small dose, effect very rapidly a complete protection; others produce only a partial protection or cure, and require much larger quantities.

It has also been demonstrated that the animal which furnishes the serum must have attained an immunity against many times the fatal dose before its serum acquires much power to protect or cure.

The antitoxic value of a given blood serum can be closely determined by finding the weight of a guinea-pig which is protected by a certain quantity of the serum against a deadly infection with the pure culture of the diphtheria bacillus or a fatal poisoning with its toxine. This value is indicated by the proportion between a cubic centimetre of the antitoxic serum and the weight of the test animal protected, estimated in grammes.

Detailed Statement.—The details of the preparation of diphtheria antitoxine are conveniently grouped as follows:

I. *The cultivation of the bacillus and the production of the toxine.*

(*a*) Choice of animals employed as tests for the pure culture and the toxine. Principles and ends of the test.

(*b*) Cultivation of the diphtheria bacilli.

(*c*) Production of the toxine.

II. *The process of immunization.*

(*a*) Choice of animals for immunization.

(*b*) Remarks upon immunization.

III. *The drawing and preservation of the antitoxine serum.*

IV. *Methods of testing the antitoxine serum.*

V. *Methods of hastening the immunization.*

VI. *Accidents during the process of immunization.*

I. THE CULTIVATION OF THE BACILLUS AND THE PRODUCTION OF THE TOXINE.

(*a*) *Choice of Animals Employed as Tests for the Pure Culture. Principles and Ends of the Tests.*—For these tests the guinea-pig has been usually employed. It gives the most delicate, exact, and constant reactions. The rabbit may also be used. Young dogs and cats are quite sensitive to the poison and can also be used as test animals.

The mode of using the animals to test the virulence of the cultures and toxines is to inject subcutaneously different amounts of each until that quantity is found which kills the animal within about forty-eight hours.

The animal is prepared for injection by clipping the hair short at the selected places and washing the exposed surfaces with a five-per-cent. solution of carbolic acid. The place generally employed is the subcutaneous tissue covering the lateral abdominal muscles.

In determining these tests the weight of the animal plays an important part. In testing the different amounts of the toxine and culture which are necessary to kill, animals having the same weight must be employed. Small, young animals are much more sensitive and more easily killed than the larger and older ones.

Behring (1) recommends the use of animals weighing from two hundred to three hundred and fifty grammes, and Roux (2) prefers those weighing five hundred grammes. The exact fulfillment of these conditions is often very difficult. After all, the tests are comparative and upon a varying subject. When this comparison is obtained and the variations are controlled, the desired end is obtained.

I have for purposes of these experiments grouped the animals according to two standards of weight: those which weigh two hundred and fifty grammes, or within seventy-five grammes of this, and those which weigh five hundred grammes, or within seventy-five grammes of it. That is to say, animals within these limits are considered, respectively, two hundred and fifty and five hundred grammes.

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* Most of this work was done in the Department of Pathology of the College of Physicians and Surgeons, Columbia College, New York city.

† The material at my disposal has been nineteen horses, together with some goats, dogs, sheep, and one cow, which have been advanced to various degrees of immunity.

‡ Antitoxine is also present in man after he has recovered from diphtheria.

Naturally, any slight deviation from these conditions may also be allowed if properly controlled. For convenience, the first-named guinea-pigs are designated *medium sized*, the others *full sized*.

(*b*) *The Cultivation of the Diphtheria Bacilli.*—The culture of the diphtheria bacillus should be recent and virulent. It can be kept at a given virulence, or within slight variations from this, for an indefinite period by inoculation and reinoculation every forty-eight hours. Upon serum, inoculations every fourteen days suffice. The culture employed in these investigations was occasionally passed through a guinea-pig to maintain and freshen its virulence.

The virulence of the cultures bears an important relation to the production of efficient toxine. The culture most generally employed had such a virulence that the injection of 0·1 c. c. killed a guinea-pig of three hundred grammes in forty-eight hours.

In order to permit of greater facility in describing the following experiments, this culture is called a "standard culture." Cultures requiring 0·2 c. c. and 0·3 c. c. to produce the effect of 0·1 c. c. of a standard culture have been likewise employed. The standard cultures produced toxines of which 0·1 c. c. sufficed to kill a three hundred-gramme guinea-pig in forty-eight hours. This toxine is for convenience called "standard toxine."

The cultures of which 0·2 c. c. and 0·3 c. c. were required to equal the virulence of 0·1 c. c. of a standard culture also produced standard toxine, but not so constantly as the standard culture. Cultures requiring 0·4 c. c., 0·5 c. c., 0·6 c. c., 0·7 c. c., and 0·8 c. c. to produce the virulent action of a standard culture have also been employed. They produced weak toxines, of which 0·33 c. c. or more were required to kill a guinea-pig of two hundred grammes in forty-eight hours.

Methods of Determining the Virulence.—Roux and Yersin (3) obtained a pure culture by rubbing the exudation from a diphtheritic throat over the surface of a series of serum tubes. The last two generally contain isolated colonies. From these colonies a bouillon culture is made, which is allowed to remain in the incubator at 35° C. for twenty-four hours. One cubic centimetre of this culture is then injected subcutaneously. Behring (4) employs the same procedure, except that he allows the culture to remain for forty-eight hours at 37°.

The injection of this one cubic centimetre is usually sufficient to demonstrate whether the culture is virulent or not. This being determined, it is desirable to find out the exact virulence, or, in other words, the exact dose necessary to kill a medium-sized guinea-pig in forty-eight hours. This is accomplished by beginning with the one cubic centimetre, as above, which generally kills within this period. Then 0·8 c. c., 0·6 c. c., 0·4 c. c., 0·2 c. c., 0·1 c. c., and so further, are respectively injected until that amount is ascertained which just suffices to kill the guinea-pig in forty-eight hours.

The following table, showing one series of tests, illustrates the relation between the virulence and the quantity of the dose:

Weight of guinea-pig.	Amount of culture injected.	Result.
215 grammes.	0·8 c. c. of a 48-hour bouillon culture.	Died in 48 hours.
305 "	0·4 c. c. of same.	Died in 8 days.
340 "	0·3 c. c. of same.	Died in 11 days.
350 "	0·2 c. c. of same.	Died in 28 days.
377 "	0·1 c. c. of same.	Slight local swelling, which disappeared; animal appears normal.

This shows that the culture had a moderate virulence.

If, in making these or similar tests, the culture is so strong that a very small dose is required, such as 0·1 c. c. or smaller, it can be diluted to advantage with sterilized water. Behring employs this as routine practice, but it is not always necessary.

The Virulence of the Cultures can be Increased.—Roux and Yersin (3) mixed half a cubic centimetre of a bouillon culture of the *Bacillus diphtheriæ* with the same amount of a culture of the streptococcus of erysipelas. This is injected, and after death pure cultures are made. Aronson (5) removes, after the death of the animal from an injection of a pure culture, a small particle from the hæmorrhagic œdematous tissue which surrounds the place of injection, and draws this particle over the surface of a series of serum tubes. From these a pure culture is obtained.

The second of these methods produces the better results. By one passage with the latter method a virulence threefold the original was obtained. Aronson (5) claims to have obtained in this way cultures, of which 0·008 to 0·009 c. c. killed a medium-sized guinea-pig within four days. Of this same culture, 0·1 c. c. was required to produce the same effect before having been passed through guinea-pigs.

Having obtained a virulent culture of the diphtheria bacillus, the next procedure is

(*c*) *The Production of the Toxine.*—The culture media employed for toxine production have been one-per-cent. and two-per-cent. bouillon. Two per cent. appears to produce toxine more quickly than the one per cent., although there is no practical difference in the strength when produced. The two per cent., in my experience, often produces standard toxine in sixteen days, while the one per cent. usually requires about three weeks. Bouillon, to which one per cent. of glucose had been added, yielded after three weeks' incubation toxines of which 0·2 c. c. were necessary to kill a medium-sized guinea-pig in forty-eight hours. Five per cent. of glycerin added to the bouillon produced a toxine of which 0·33 c. c. was required to equal the action of 0·1 c. c. of standard toxine.

The reaction of the culture media must be distinctly alkaline. Neutral or slightly acid media do not favor good growths. The reaction which was found best is one which gives a faint alkaline reaction with litmus paper. With phenolphthalein solution (one per cent. in fifty per cent. alcohol) it is distinctly rose without being markedly so.

The shape of the containing vessel in which the culture is made for the production of toxine which has given, as a rule, the best toxine, has been that of the ordinary half-litre flasks. These were half filled with bouillon. Vessels which were made according to Fernbach (6) have produced no better results. Fernbach's flasks are flat-bottomed, with a straight neck and a lateral tubulature in one side, about four centimetres from the base. They are filled to just below the tubulature.

Roux and Yersin's method of growing cultures in a current of moist air, which enters the neck of a Fernbach flask and escapes through the tubulature, have produced good toxines, but, so far as our experience extends, no more quickly and of no greater strength than by the use of simple flasks.

Aronson's method of growing cultures in a current of oxygen have given uncertain results, and we wish to have further experience before expressing a positive opinion.

The exact amount of bouillon to put in each vessel to attain the best production of toxines is yet to be determined. We have employed as much as a litre in two-litre flasks, and also the same amount in Fernbach vessels, with good results.

The inoculations of the media have been effected by means of a minute drop upon the platinum wire. Roux (7) inoculates the media with twenty-five to fifty cubic centimetres of a culture which has grown in the incubator for from twenty-four to forty-eight hours. This is a good procedure, as it insures a good starting of the growth. We have found five to ten cubic centimetres of a like culture to answer this purpose.

After being about three weeks to four weeks in the incubator at 37° C., a small portion of the bouillon is removed by means of a pipette and tested.

The cultures may be allowed to stand at room temperature after removing them from the incubator, for some weeks, without deterioration in the toxine formed. It may be allowed to remain in the incubator during the process of testing (*i. e.*, about three to five days) without causing any practical change.

If the toxine be found to be standard toxine or approximating this, it is removed from the incubator. If not, the culture may still be allowed to grow for about six weeks. Toxine weaker than 0·33 c. c. fatal to a medium-sized guinea-pig in forty-eight hours, I do not generally use, because, as immunization proceeds, the dose becomes too large for convenience. But toxine even weaker than 0·33 c. c. gives toxine reactions, and consequently can be used if needed.

The method of testing the toxine is essentially the same as that described for testing the pure cultures. The object to ascertain is the exact amount which can kill a medium-sized guinea-pig in forty-eight hours. The following table shows such a series of tests and their results :

Weight of guinea-pig.	Amount used to inoculate.	Result.
Medium sized.	0·33 of a two-per-cent. peptone-bouillon culture, grown 16 days at 37° C.	Died in less than 48 hours.
269 grammes.	0·2 c. c. of same.	Died in 48 hours.
249 "	0·1 c. c. of same.	Died in 48 hours.

This toxine is that which I have designated as "standard toxine."

Preparation of Tested Toxines for Use.—By passing the bouillon culture containing the toxine through two or three layers of sterilized filter paper, a clear filtrate can be obtained. This is not entirely free from the bacilli, but is clear and easily diffusible in the tissues.

The bouillon culture containing the toxine can also be filtered through porcelain filters and made perfectly clear and free from bacilli. The form of the porcelain filter with which I have succeeded the best is Mueneke's large cylinder and glass receptacle. Kitasato's filter has also been employed, but is not so well adapted or as convenient as the above for filtering large quantities. A simple arrangement for filtering consists in supporting a moderate-sized glass funnel above an *éprouvette* with a high lateral tubulature containing a Pasteur-Chamberland bougie. The outlet of the funnel is connected by a rubber tube with the bougie, and the tubulature with an ordinary water aspirator, which can also be used for the preceding two filters.

Behring's method of simply decanting the clear portion and adding 0·5 per cent. of carbolic acid has also been employed. The carbolic acid kills the remaining bacilli and does not interfere to any practical extent with the activity of the toxine. The objections to this method of decanting are that small particles are apt to remain in the fluid and may block the needle; furthermore, the dead bacilli remaining in the decanted fluid, when injected, may act as an irritant and cause abscesses.

Every culture does not produce good active toxine, even if all the conditions apparently necessary have been fulfilled. Two cultures from the same source grown under exactly the same conditions often produce toxines differing widely in strength. O. Boer, who worked with Behring, mentions having upon one occasion obtained only five litres of strong diphtheria toxine from some hundreds of litres grown under like conditions. With standard cultures, and with some which were slightly more virulent, grown under favorable conditions, I have obtained to date about one litre of standard toxine for every eight litres grown.

In making fresh inoculations from old bouillon cultures, it is best to secure the bacilli from the surface of the media, as they are younger and more virulent than those found in the deeper layers.

Aronson (8) maintains that, by causing a whitish-gray pellicle of the bacilli to grow upon the surface of the bouillon, he has found a method by which he has constantly produced very strong toxine. My experience does not agree with his. The toxine production appears to depend upon the virulence of the culture, which should preferably be inoculated and grown at first upon the surface of the bouillon. Whether this forms a pellicle or not seems to me a matter of indifference.

Toxine is preserved by the addition of 0·5 per cent. of carbolic acid and should be kept in a cool and dark place in a well-filled air-tight flask. Toxine which has been filtered through porcelain maintains its strength for a long time (from my experience, three months) without the addition of carbolic acid.

II. THE PROCESS OF IMMUNIZATION.

(*a*) *Choice of Animals for Immunization.*—Those most commonly employed are the horse, sheep, goat, dog, and cow.

It is not true, as Behring (9) originally taught, that the animal possessing the greatest sensitiveness to the poison produced the best antitoxine.

The horse, which was formerly believed to be refractory to diphtheria, has been proved by Roux (2) and Martin to be the best adapted for producing antitoxine. It bears the loss of large quantities of blood with no evil effects and can be easily and quickly immunized.

The normal temperature of the horse is 100° F. Practically 99° to 101° F. is considered normal.

After the injection of the toxine or culture there is a period of reaction which is generally characterized by a rise of temperature. Weakness, loss of appetite, ataxic gait, or even complete prostration and death may also occur.

The horses which have proved themselves the best adapted to bearing the process of immunization are ordinary working horses accustomed to hardship. Mustangs have a very good tolerance of the poison and as a breed are among the best to use. Finely bred and carefully nurtured horses appear to be more sensitive than others, and are apt to react with abnormally high temperatures and long periods of illness. We have selected horses weighing from about a thousand to twelve hundred and fifty pounds as the best size to handle. The horse must be healthy, especially having no kidney lesions or any disease of the internal organs.

Healthy horses with old bone lesions of the feet can be very well employed. The horses are carefully examined for glanders. In my horses no case of glanders has been found. The injection of mallein caused only slight reactions.

In one case a reaction, indicated by a rise of temperature of four degrees and three fifths Fahrenheit, was caused, with swelling and no prostration. After an interval of rest this horse was again injected and gave no reaction.

The time to inject mallein is preferably before starting the diphtheria injections. It may also be employed during the course of the immunization, provided it is not used within the period of reaction.

The presence of tuberculosis should also be guarded against by the use of tuberculin.

The cow can be quite readily immunized, and the milk is found to contain antitoxine. It is difficult to obtain antitoxine of a high activity in a cow. The dog and sheep react moderately and are readily immunized. The goat, however, is extremely sensitive, requires much attention, and, as a whole, does not give good results. It reacts with long periods of increased sensitiveness and often develops a cachexia.

For the sheep and goat I have adopted Behring's (9) plan of considering everything under 104° F. as normal. The dog's normal temperature is about 101·5° F. and may vary about one degree without special significance.

(*b*) *Remarks upon Immunization.*—The process of immunization begins with the subcutaneous injection of so small a dose of the pure culture or toxine of diphtheria that it is readily tolerated. This dose is gradually increased, after intervals of rest, until many times a fatal dose can be borne.

During the *period of reaction the animals exhibit an increased susceptibility to the diphtheria poison.* When this period of reaction is present the administration of a dose equal to the last administered can very well cause death or so serious an illness as to interrupt treatment. One must wait before administering another injection until the temperature and general state of the animal have returned to normal.

During the last stages of immunization the doses can be increased much more rapidly than at the beginning.

The pure culture or the toxine can be used for the purpose of immunizing. Toxines of a known strength and free from bacilli are the most convenient and exact. The reaction is undoubtedly in both cases due to the toxine. The culture produces its reaction by means of the toxine it contains at the time of injection and that formed after injection. Its action is consequently more gradual and less concentrated than that of the toxine. The culture, so far as my experience goes, appears just as well adapted as the toxine for causing the ordinary reactions of the treatment. When, as occurs toward the end of the immunization, a very strong impression is needed to produce antitoxine of a high activity, the toxine, or a mixture of the toxine and culture, are indicated.

There is no doubt that the toxine, plus the dead bacilli, effect more reaction than the toxine alone. But this reaction is due in part to the irritation caused by the dead bacilli, and is not the desired toxine reaction. If an increased reaction is desired, it is much better to mix the toxine with a pure living culture. This causes much less irritation and produces the desired toxine reaction.

A considerable portion of my toxine has been filtered and compared in its action with the unfiltered. It was found to cause decidedly less swelling than the unfiltered and gave as good reactions. With it the period of reaction appeared shorter and more clearly defined. Inasmuch as it is extremely desirable to eliminate all elements of uncertainty, and especially such as hide the real toxine action, the use of a filtered toxine becomes a matter of considerable importance.

There is a great difference of tolerance in individual horses. In some, two cubic centimetres or even five cubic centimetres of a standard toxine or culture can be used with impunity as the initial dose and rapidly increased. In others, a much smaller dose gives a marked reaction and must be diminished or combined with a two-per-cent. solution of the trichloride of iodine (9) of from one to three times its volume, or with five to ten (2) times its volume of Gram's solution, both of which diminish the effect of the poison. The safe routine initial dose is half a cubic centimetre of a standard toxine or culture. Notwithstanding these precautions there are horses which react disproportionately, and after every increase in dosage become very ill with long periods of reaction.

The average time required to immunize a horse is from two and a half to three months and a half. A reasonable limit of time to be devoted to the immunization of a horse I believe to be six months.

A supersensitive horse can be made to yield good active serum. Behring (1) has some animals which respond strongly to one one-thousandth of an ordinary dose, and yet at the same time yield a serum with a very high antitoxic power.

The usual places of injection are in front and behind the shoulder, the chest, and the lower anterior cervical region; but any place may be selected where the skin and subcutaneous cellular tissue are sufficiently loose and abundant to admit of some swelling. The skin over the places chosen for injection should be closely clipped and washed with soap, alcohol, and bichloride or carbolic-acid solution.

The needle to be employed must be strong. Horses have a way of twitching the superficial tissues, especially in the region of the shoulder, in such a way as to break the ordinary hypodermic needle when introduced into the subcutaneous tissue.

The syringe employed is the ordinary hypodermic syringe. Two sizes have been used, one having a capacity of eight cubic centimetres, the other a capacity of about fifty cubic centimetres. Martin (10) suggests the attachment of the needle to the syringe by a small piece of rubber tubing ten centimetres in length. This admits of movement without disturbing the relations of the introduced needle.

The amount injected subcutaneously in one place should not ordinarily exceed fifty cubic centimetres. In the horse one hundred cubic centimetres can be so injected by using a needle ten centimetres long and by changing its direction as the syringe is gradually emptied.

The formation of local necroses after injections of the pure culture or toxine occurs in some animals as a regular reaction. In the horse toxine does not cause necrosis, but with the pure culture a necrosis sometimes occurs, especially if the injection is superficial. In the goat and sheep I have not seen or caused anything more than a diffuse hard swelling. Guinea-pigs give necroses with both the culture and the toxine.

In many horses undergoing immunization a swelling arises upon the middle of the abdomen. It is an oblong, pear-shaped tumor, about the size of a hand. It is subcutaneous, easily movable, and has no apparent connection with any of the other swellings which may be present. It occurs at a variable period, usually eleven or twenty-five days after the commencement of the treatment. It seems to have had no effect upon the progress of the immunization.

A careful observation of the temperature and weight of the animals undergoing immunization is important. Loss of weight is the best indication of the beginning of a cachexia, sometimes caused by the process of immunization. Weight taken once a week answers all practical purposes.

The temperature usually rises after each injection of the toxine or culture, and then usually returns to normal in from two to four days. The height of the temperature is a fair measure of the severity of the infection or poisoning. It is important during the immunization to take the temperature twice a day, as, especially in horses, marked changes may occur between morning and evening temperature.

The temperature of the horse after an injection with the toxine or culture of diphtheria—

1. May remain normal.
2. May rise one or two degrees, and in one to three days return to normal.
3. May, when the rise of temperature is above two degrees, return to normal or nearly normal by the third or fourth day, and begin on the fourth or fifth day to rise to a slight extent, or as much and sometimes more than directly after the injection.
4. May rise and remain slightly above normal for about ten days, with intermission of one or two days of normal temperature.
5. May be a decided rise and then return to normal gradually, occupying about ten days.
6. May fall to below normal and remain so one or more days without apparent cause soon after a dose approximating the preceding one. When the animal shows no other symptoms of reaction, this is always to be considered an indication that it is safe to administer another and an increased dose.

The characteristic temperature reaction is a decided rise within about twenty-four hours after injection, followed by a fall to normal or nearly so on the third day, and then a second rise varying from being a very slight one to one exceeding the reaction directly following the injection. If the temperature returns to normal and remains there three days, it generally does not rise again. If the temperature due to a reaction be slightly above normal, with normal intermissions, it is generally to be regarded as normal, and as an indication for a fresh injection after a moderate period of rest.

The horses should have plenty of fresh air. Moderate exercise is also indicated.*

Horses which have received a large enough dose to cause a well-marked reaction should not be exercised directly—*i. e.*, within twelve to twenty-four hours—after its administration. Exercise will often cause the temperature to rise one to two degrees, sometimes even when three or four days have elapsed since the last injection.

In the ordinary routine immunization of a horse the objects sought are, in general, to cause reactions of about one to two degrees and to maintain the animal in full weight and health.

Chart No. 1 illustrates this routine method. The beginning dose, to test the sensibility, was one cubic centimetre of a nineteen days' old standard culture. At nineteen days its virulence was about a fifth of that at forty-eight hours. Hence the be-

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* Guinea-pigs demonstrate very strikingly the need of fresh air, sunlight, and exercise. Those which are kept in a large cage, with plenty of air and sun, survive others which are kept confined in darkened places by many hours, sometimes two or three days, when both have been injected with exactly the same deadly dose.

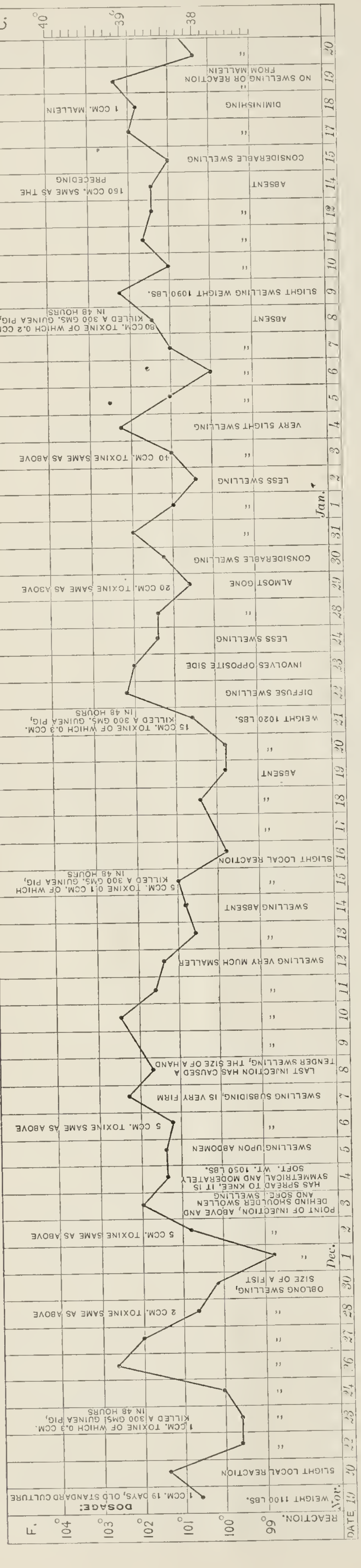
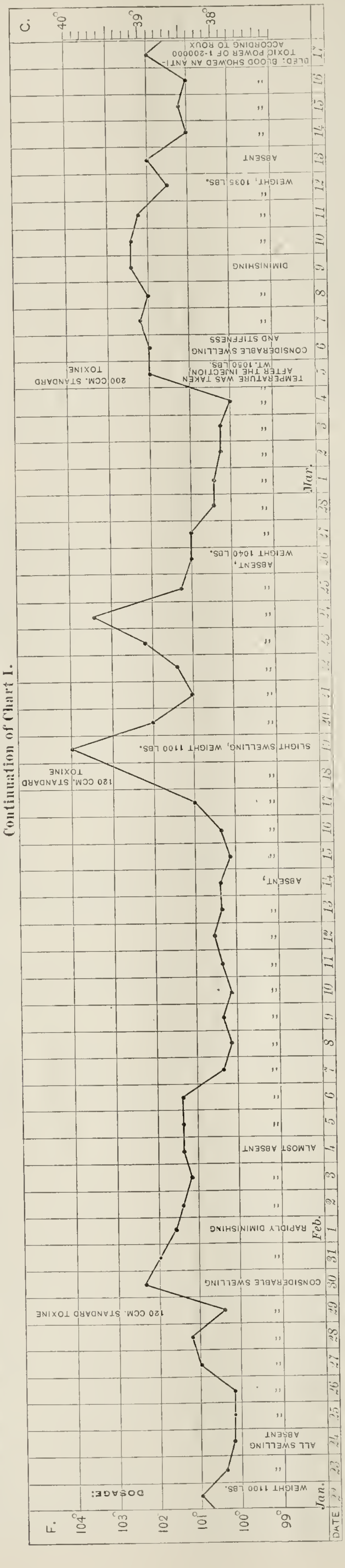


Chart I.



Continuation of Chart I.

ginning dose was equivalent to 0·02 c. c. of a standard toxine or culture. This caused a reaction of about one degree, thus showing that the animal was probably more than usually sensitive. From this time on the dose was cautiously increased according to indications.

Small variations of temperature up to about 101° F. can be disregarded when a moderate length of time has elapsed and the horse appears normal in other respects. An illustration of this is the fifth injection made when the temperature was 101·2° F. The reaction caused was about one degree.

This horse was more than ordinarily sensitive, and the cultures and toxines could have been mixed to advantage at the beginning with the trichloride of iodine or Gram's solution, as already mentioned.

The treatment on the whole was conservative, the full time for each reaction being observed and no reaction of more than two degrees and three fifths (Fahrenheit) was caused until late in the treatment. The horse, after four months of treatment, was in the best of health and gave antitoxine of 1 to 200,000 according to Roux.

After the process of immunization has been advanced sufficiently to produce antitoxine of the required strength this degree of immunity must be maintained by further injections.

The injection once in twenty days of one large dose (two hundred to four hundred cubic centimetres) of standard toxine into the jugular preserves the immunity and is very convenient. As much as six hundred cubic centimetres of a toxine of which 0·1 c. c. killed a five-hundred-gramme guinea-pig has been injected at one time into the jugular of the horse without causing death (2).

Another method of maintaining the immunity is to inject subcutaneously ten to twenty cubic centimetres of standard toxine every two or three days, provided it causes no grave symptoms.

The method which we have adopted as the best for maintaining the immunity consists in injecting subcutaneously, when the period of reaction and a moderate interval of rest (three to six days) have elapsed, an amount of toxine equal to the last injection. If it is desired to increase the immunity still further, one must proceed according to the principles already mentioned. After a tolerance of one hundred to two hundred cubic centimetres of standard toxine has been established, frequent increases of one hundred cubic centimetres, and even sometimes two hundred cubic centimetres, can be made without risk. Doses can be increased up to about seven hundred and fifty cubic centimetres subcutaneously of a toxine or culture of which 0·1 c. c. kills a five-hundred-gramme guinea-pig in forty-eight hours.

To increase the degree of immunity, frequent injection of moderately large doses (*circa* two hundred cubic centimetres) appears to be better and less dangerous than the administration of one large dose of six hundred cubic centimetres or more at long intervals.

III. THE DRAWING AND PRESERVATION OF THE ANTITOXINE SERUM.

After the animal has been subjected to the immunizing process sufficiently long to have acquired a good tolerance of the toxine or culture, it is proper to withdraw some of its blood to test.

The period of time and the dosage necessary to develop antitoxine vary greatly. A sheep which had undergone the process of immunization for sixty-three days, and which had reached a tolerance of a dose of twenty cubic centimetres of a toxine one third as strong as standard toxine, yielded strong antitoxine.

In the horse, it is usual to wait before testing until a dose of one hundred cubic centimetres standard toxine is tolerated; twenty-five cubic centimetres of blood will furnish enough serum for testing the antitoxic value of the blood.

For some days after the injection the blood may be toxic (11). As a rule, it is best, when a moderately large injection has been employed, to draw the blood in from eight to twenty days after the last toxine or culture injection. After a small injection with rapid disappearance of reaction, one need not wait so long, but may bleed in about five days after the injection.

From six to eight litres can be drawn from the horse at one time, and the bleeding can be repeated every three weeks.

Sheep bear the withdrawal of two hundred and fifty to five hundred cubic centimetres very well. Behring and Boer (12) repeated this in one case, with no evil results, every fourteen days. We have found an interval of rest of three weeks to be indicated.

In an endeavor to find some rule as to the quantity to be drawn in different animals, I have come to draw half a litre for every hundred pounds of the animal's weight, and have found this rule applies to about every case.

The method of drawing the blood is to insert a trocar into the jugular. The trocar employed, which was devised by me, is a simple cannulated one, ten centimetres in length and four millimetres and a half in width. It should be moderately sharp for two millimetres from the point, and the rest of the edge of the point should be blunt. A cannulated trocar has the great practical value over a solid one, inasmuch as the moment the vein is entered the blood begins to flow.

To the end of the cannula is attached a piece of rubber tubing thirty-eight centimetres in length, and this is in turn attached to a piece of bent glass tubing, twenty-three centimetres in length. This tubing, etc., are sterilized by heat and kept in five-per-cent. carbolic solution. This is, according to our experience, the simplest and best adapted apparatus for bleeding.

Instead of connecting the cannula with rubber tubing, a cannulated plug (Roux) can be used to connect the cannula with the rubber tubing, and which is to be joined to the cannula after the flow of blood has begun.

If the metallic trocar is not to be had, a glass tube of like size, bent at an oblique angle, with one end drawn out and filed off obliquely, can be used. The rough edge is made smooth by heating in the flame.

The Method of Insertion of the Cannula into the Vein.—The skin is first prepared by clipping the hair and washing with soap and applying alcohol and carbolic-acid solution. Then incise the skin two centimetres and a half in length directly in the line of the jugular. This exposes a white, thick fascia which must also be incised.

An assistant stands directly in front of the horse, and with his thumb compresses the jugular at about ten centimetres below the incision. The operator or, better, an assistant then compresses the vein about two and a half to five centimetres above the incision. The vein is now taken firmly by the operator between the thumb and forefinger of one hand, while with the other hand the trocar is inserted upward, at slightly less than a right angle with the skin surface, directly into the vein.

The trocar should be slowly but firmly introduced, the hand carrying it being supported against the neck of the horse. The end surface, making up the point of the cannula, should be kept undermost. After the blood begins to flow, the point of the trocar should be turned somewhat more upward and pushed into the vessel for about two centimetres and a half, and its free end held at the proper angle in one hand, which is supported against the neck of the horse. If the horse struggles, this hand should be pressed firmly against the neck, as in this way the movements of the horse can be followed without disturbing the position of the cannula.*

If the horse is to be bled to death it is advisable to have him tied down and to use a cannula five millimetres and a half in diameter. The horse often struggles violently before dying.

After withdrawing the trocar, the skin should be united by sutures or a pin-suture.

Wide-mouthed vessels of a capacity of about five hundred to seven hundred cubic centimetres are ordinarily the best adapted for collecting the blood.

Erlenmeyer flasks of this capacity also answer this purpose. With ordinary balloon flasks so much movement is usually required to remove the lower portion of the serum, that the serum is apt to become quite bloody. Erlenmeyer flasks with a low side neck combine a good collecting vessel with the advantage that the serum can be gradually decanted through the side neck without exposure to the air.

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* With the glass cannula it is better to cut directly down upon the jugular and expose it. It should be brought forward upon a curved director and a small oblique incision made, through which to insert the glass cannula. Two loose ligatures are also useful, one above and one below the incision in the vessel. This gives perfect control and enables one to recover the vein again if the cannula becomes free.

The vessels should be a little more than half filled. The mouths of the receiving vessels are covered by two filter papers which have been pressed firmly down and around the mouth, so as to form a loose-fitting cap. The under one is attached firmly, either by pasting or by a rubber band, and the upper is allowed to remain loose. The whole is sterilized. If dry heat is used, the rubber band must obviously be attached later.

The glass tube is plunged through the under cap after removing the upper, and the vessel about one half filled, the tube removed, and the upper cap put in place. These paper coverings are very convenient. Their employment originated in the Pasteur Institute, Paris.

After removal, the blood should be put in a cool place and allowed to clot. Usually it is allowed to stand in the ice box for twenty-four to forty-eight hours. If the clot becomes adherent, it should be loosened in about two hours after the withdrawal. About one third of the blood separates as serum.

The Pasteur balloon pipette, the ordinary pipette, or a siphon pipette may be used to draw the serum off. It is convenient to collect such as appears perfectly clear in one set of vessels, and to put the cloudy or bloody in others to settle.

The preservatives are chloroform, camphor, and carbolic acid; 0·5 per cent. of carbolic acid has been found sufficient to preserve the serum. It is the best preservative, but, owing to its poisonous qualities, it can only be used when the amount of antitoxine serum to be used at one dose is small. For this reason, Behring has made it a rule never to use an antitoxine serum of which more than about ten cubic centimetres are required at one dose. The carbolic acid added should be a five-per-cent. watery solution.

Serum preserved by carbolic acid develops after some weeks an albuminoid precipitation, which can readily be removed by filtration. Behring (13) recommends allowing the serum to stand for fourteen days, after the addition of the carbolic acid, in order to obtain a complete precipitation of the albuminoid substances caused by the carbolic acid, and to allow the serum to mature. There is a slight decrease in the strength of the antitoxine due to the action of the carbolic acid. An old serum, he maintains, is much less likely to cause irritation, skin eruptions, etc., than a fresh one, because the irritating substances which are present in the serum are gradually made harmless by the carbolic acid without affecting the strength of the antitoxine.

Camphor is the best thing to use when large doses are necessary. A small piece, about one cubic centimetre, is used to each twenty-five to forty cubic centimetres. It is added to the serum after being passed through the flame. Camphor rarely causes a deposit and no loss of strength has been noted. It is more a preservative than an antiseptic.

Behring (9) recommends chloroform, to the extent of 0·5 per cent., as the best preservative after carbolic acid. Chloroform causes occasionally a slight deposit.

We have also employed chloroform and camphor together and obtained good results.

The final step is to put the required amounts for dosage in small bottles, preferably of colored glass, for distribution. A rubber or closely fitting glass stopper, firmly tied on, is the best means of keeping the bottles properly closed. Cork may also be used.

The serum I obtained upon Christmas, and preserved according to the different methods mentioned, has maintained its strength fourteen weeks unimpaired.

During all the manipulations the strictest asepsis should be observed. Much handling and exposure often cause contamination even when carbolic acid has been used (9). If it is desired to simply preserve the serum, it should be put in medium-sized flasks, which are well filled, kept at a cool, constant temperature, and well protected from the light. A temperature of 70° C. destroys the activity of the antitoxine. It is preserved the best in the ice-box.

If the serum is not clear it can be filtered. In addition to the filters already described for filtering toxines, sterilized absorbent cotton has also been employed with good results. Considerable pressure is necessary if a porcelain filter is used. This pressure is best obtained by the use of an air pump to cause direct compression of the air over the serum. Strong aspiration can also accomplish the same result.

Filtration through porcelain is also a very good procedure to preserve the serum and free it from previous contamination. Aronson and Roux employ it as routine practice.

The antitoxine serum is transparent and usually of a straw color. It may vary from a light straw color to a bright red.

Serum containing considerable of the coloring matter of the blood is said by Behring (9) to leave a discoloration in and under the skin if injected subcutaneously. From a clear settled serum of an intense red color injected subcutaneously no discoloration has been observed.

Behring (11) believes that the antitoxine would maintain ts strength for a year without change, or, if any, so little as not to influence the usefulness of the antitoxine serum.

IV. METHODS OF TESTING THE ANTITOXINE SERUM.

Antitoxine serum is tested either—

(*a*) By mixing it with toxine and injecting the mixture; or

(*b*) By the injection of the antitoxine serum, followed at a variable length of time by the administration of the pure culture.

(*a*) *Tested by Mixing with Toxine.*—If diphtheria toxine and antitoxine serum are mixed together (14) in a certain proportion, the antitoxine renders the toxine harmless. The proportion required to show this action of the antitoxine has been subjected by Ehrlich (15) to careful research, and he has found that it forms a very reliable basis for testing the strength of the antitoxine.

One cubic centimetre of normal toxine* is mixed with varying amounts of the antitoxine until the exact amount is ascertained which renders the toxine harmless, when both are injected together in the test animal.

If 0·1 c. c. of the antitoxine serum renders one cubic centimetre of the normal toxine harmless, it is designated as "normal antitoxine serum."

In order to ascertain if the antitoxine has rendered the toxine harmless, the mixture must be injected subcutaneously into a guinea-pig weighing from two hundred to three hundred grammes. If death, loss of weight, or local infiltration, with swelling and induration, result, the toxine is still poisonous. If none of these symptoms occur, and the animal remains perfectly well, the toxine has been rendered harmless.

If 0·08 c. c. of normal antitoxine serum (*i. e.*, a fifth less than when no reaction results) is mixed with the one cubic centimetre of normal toxine, a local infiltration and loss of weight are caused. If 0·2 c. c of antitoxine is necessary to render the one cubic centimetre of normal toxine harmless, it is half normal serum, and so further. If, on the other hand, only 0·05 c. c. of the antitoxine is required to accomplish the same result, it is twice normal serum. If it needs only 0·025 c. c., it is four times normal serum. This series, one way or the other, is carried further, until the exact amount is found which renders one cubic centimetre of normal toxine harmless.

Instead of one cubic centimetre of normal toxine, we have also employed in these tests three cubic centimetres of a toxine a third as strong as normal toxine, with like results. Strong antitoxine is often sixty to one hundred and fifty times normal antitoxine serum.

One cubic centimetre of normal antitoxine serum is designated as an "antitoxine unit." A cubic centimetre of strong antitoxine sixty to one hundred and fifty times normal antitoxine, would consequently contain sixty to one hundred and fifty antitoxine units.

Experiments of mixing Serum and Toxine to Test the Strength of the Antitoxine, December 26th, 9 P. M.

Blood of horse, Chart II; drawn December 25th.

Weight.	Amount of mixture.	Result.
269 grammes.	$\frac{1}{10}$ c. c. of serum mixed with ten times the minimal fatal dose of toxine.	Remained alive and well.
290 "	$\frac{1}{20}$ c. c. of serum mixed with toxine, as above.	Remained alive and well.
309 "	$\frac{1}{40}$ c. c. of serum mixed with toxine, as above.	Remained alive and well.

These tests show the serum to be at least four times as strong as normal serum.

In this series one six-hundredth of a cubic centimetre was mixed with one cubic centimetre of the toxine, and the animal still survived. This shows that this antitoxine serum is sixty times as strong as normal antitoxine, or that one cubic centimetre contains sixty antitoxine units.

(*b*) *Antitoxine Tested by the Injection of Antitoxine followed at a Variable Period by the Administration of the Pure Culture.*—The object of this method is to find the number

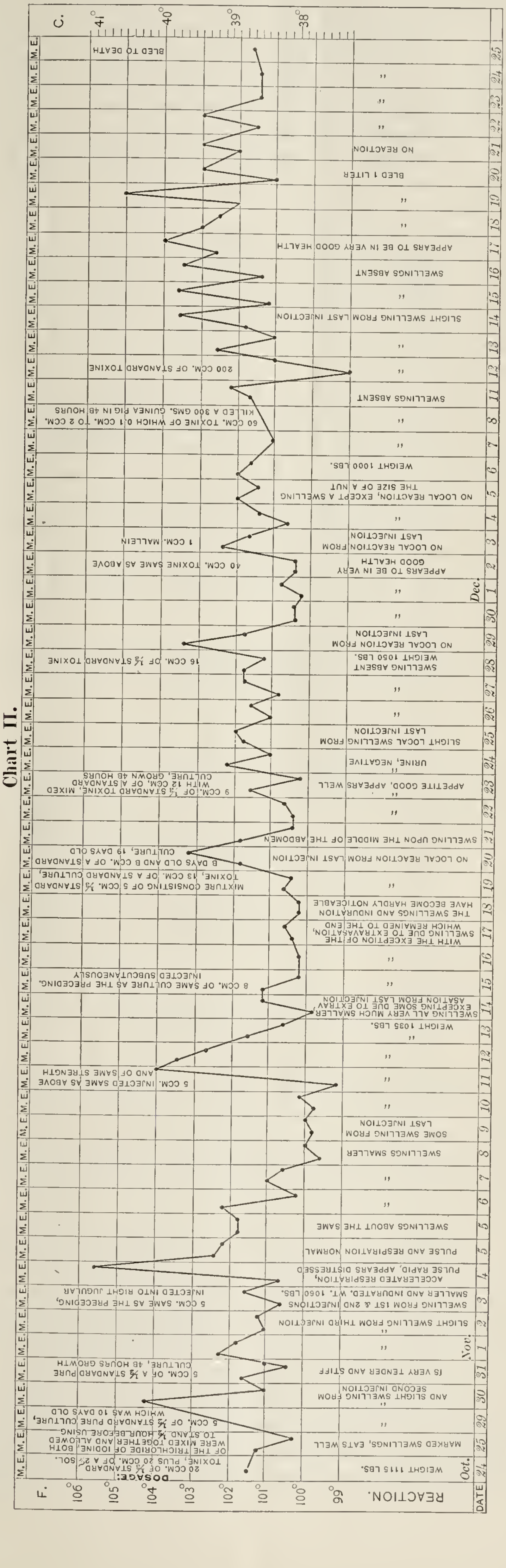

Chart II.

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* One tenth cubic centimetre of normal toxine kills a medium-sized guinea-pig in from five to seven days.

of grammes of the guinea-pig which are protected by a given quantity of the antitoxine serum. If, for example, a five-hundred-gramme guinea-pig receives an injection of ·005 c. c., it has received one one-hundred-thousandth of its weight, and if this amount protects it against a deadly infection with the pure culture, it shows, the above proportion being reduced to whole numbers, that one cubic centimetre of the antitoxine serum has protected one hundred thousand grammes of guinea-pig, and is expressed by saying the serum has a protective power of one to one hundred thousand.

Behring (16) employs ten times the minimal fatal dose from a quarter to four hours after the injection of the antitoxine. Normal serum so tested has an activity of about one to five thousand. Roux (1) injects the antitoxine twelve hours before a dose of the pure culture, which kills in less than thirty hours.

The exact minimal fatal dose is not employed for these tests, because a dose sufficient to kill within about forty-eight hours is required in practical work, and the minimal dose kills in from three, four, or five days to some weeks. If the antitoxine is to be tested by separate injections at different intervals, opposite sides of the animal are used when this interval is from a quarter of an hour to four hours. The side is optional when the interval is twelve hours or more.

The following table is selected from a set of experiments by this method, according to Roux, who is now generally followed in making these tests:

Serum of horse, Chart II; drawn December 25th.

Weight of guinea-pig.	Dose of serum and its equivalence.	Dose of culture.	Result.
212 grammes.	0·005 c. c. 1 to 50,000.	1·5 c. c. pure 48-hour culture given 18 hours after the serum.	Remained alive and well; no local reaction.
594 "	0·005 c. c. 1 to 100,000.	1·5 c. c. pure 48-hour culture given 18 hours after the serum.	Died January 23d. Gave very slight local swelling. P. M. showed lesions of diphtheria.
Control, 490 grammes.	. . . .	Same amount of culture, without antitoxine.	Died in 26 hours.

In this test the animals which are considered protected must be free from local œdema, necrosis, etc. In the above tests one one-hundred-thousandth protected sufficiently to prolong life in one case twenty-nine days and in another fourteen days, preceded by local swelling and necrosis.

Five times the dose fatal in forty-eight hours is generally certain to cause death in less than thirty hours. If the proportion is maintained these tests may be made with medium-sized or full-grown guinea-pigs. An interval of eighteen hours has been allowed and is not found to differ to any practical extent from when twelve hours intervene.

A Comparison of the Equivalence of the Results obtained by the Methods of Ehrlich and Roux.—An antitoxine serum of one to fifty thousand, according to Roux's method, is equal to about sixty times normal antitoxine serum. One cubic centimetre of one to fifty thousand consequently contains sixty units.

Upon this basis ten cubic centimetres equal six hundred normal antitoxine units, which is the number contained in bottle No. 1 of the Behring antitoxine. Calculated further, sixteen cubic centimetres and two thirds equal a thousand normal antitoxine units, which are the contents of bottle No. 2 of the Behring antitoxine. And again, twenty-five cubic centimetres equal fifteen hundred normal antitoxine units, which correspond to the number contained in bottle No. 3 of the Behring antitoxine.

V. METHODS OF HASTENING THE IMMUNIZATION.

One can proceed more rapidly to immunize than by the routine practice already described.

Instead of causing reactions of one and two degrees, reactions up to four and five degrees can be obtained. The interval of rest can also be shortened, and upon the first return to normal, or within one or two days of it, the horse can be again injected. Of course, by pursuing this method a considerable element of risk must be encountered and overcome. Between the strict following of this plan and the routine schedule already laid down, there is a mean for a hastened treatment which can be pursued with little or no risk.

The case shown by chart No. 2 is a striking example of a hastened treatment, the reactions being generally from three to five degrees. The temperature curve of this case illustrates admirably how the organism of the horse accustomed itself to the poison. Five cubic centimetres caused at first a temperature of 105·6° F., then 104° F., and later 101° F.; two hundred cubic centimetres finally not producing as much temperature reaction as five cubic centimetres did at the beginning.

Besides hypodermic injections intrajugular ones were also employed, the object being to get a direct, intimate mixing with the blood and to produce a more decided reaction. The first intrajugular injection caused a rise to 105·6° F.

The administration of toxine in this manner is about a quarter more fatal than when injected subcutaneously. When an especially strong reaction is desired, as toward the end of a prolonged treatment, in order to get a very highly active serum, it is proper to use intrajugular injections, otherwise they are not indicated for general employment.

The periods of rest were made as short as possible, yet not unreasonably so, as shown by waiting eight days after the first intravenous injection. The strain upon the horse was very severe, as is well illustrated by the loss of a hundred and fifteen pounds within forty-three days. This horse was one of the first horses immunized in New York.

The continued increase of large doses to cause so marked reactions was undertaken from the conviction which had resulted from studying many cases—namely, *that the antitoxine does not begin to be formed to a marked extent until a decided and stimulating amount of toxine is used.*

The time occupied (fifty-seven days) is the shortest period, so far as I know, in which a horse has been sufficiently immunized to produce antitoxine equal to Behring's No. 1.

The horse was bled to death on December 25th, in order to obtain as large a supply of serum as possible for immediate use. The amount of blood obtained was twenty-five litres. About fifteen litres, that which was first drawn, came in a constant stream; the rest was gathered directly after death from the blood which remained in the blood-vessels. Of the first fifteen litres, about a third separated as serum. A much lower proportion of serum was obtained from the other.

In the preceding case the swellings caused in general a diffuse general hardness, with no softening at the periphery and no tendency toward necrosis. The first injection caused a very decided swelling; the whole pectoral muscles were swollen, and the chest protruded about six centimetres.

The swelling caused by extravasation upon November 11th spread along the sheath of the jugular and involved the muscles of the jaw. About eight centimetres below the angle of the jaw, directly in the line of the jugular, a firm tumor formed which contained necrotic tissue and some dark-colored pus.

The presence of an abscess is not ordinarily an indication to stop treatment, unless it causes temperature and general disturbance of the well-being of the horse. In three cases, when large abscesses were present, large injections were made, with no evil results.

VI. ACCIDENTS DURING THE PROCESS OF IMMUNIZATION.

We have had two cases, one in which pneumonia complicated the injection of the poison and resulted in death.

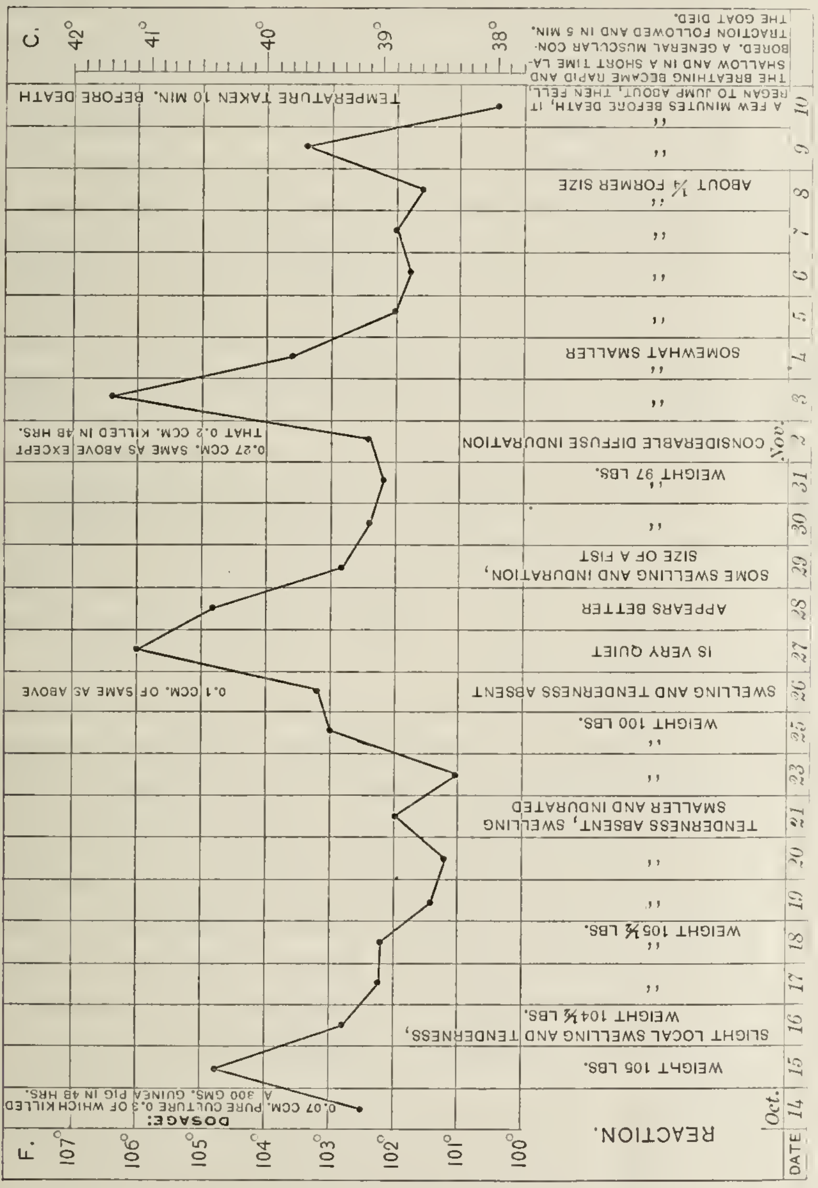

Chart III.

Just what relation this pneumonic process bore to the poisoning could not be determined.

In the other, the horse was kicked in the knee joint. This injury appeared to be aggravated by the toxic injections and resulted in a large wound and suppuration and finally involved the joint. The injury caused a temperature of 104·8° F. and stopped the treatment. The horse not regaining the use of the limb, it was deemed advisable to put it to death.

The occurrence of a period of prolonged reaction, which appears to return to normal two or three days after injection, but which rises again and remains high, can very well mislead the most careful. The injection of a dose the same as the preceding dose, or of an apparently properly increased one, during this first return to normal, can cause a serious interruption or even death.

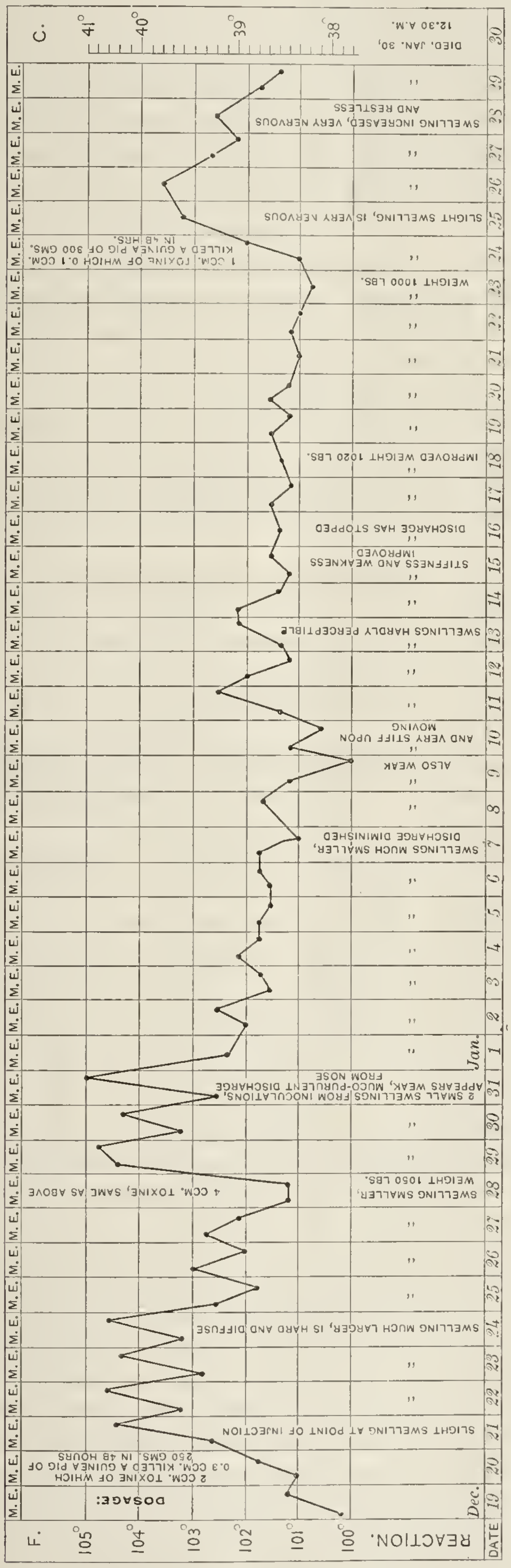

Chart IV.

Animals Undergoing Treatment are apt to Acquire a Cachexia.—This is most marked and easily caused in the goat. The horse also readily develops a cachexia. This is made known by loss of weight, appetite, and a tendency for the temperature to remain above normal for an unusually long time after an injection.

The chart No. III illustrates a case in which the temperature would have risen, most probably, after an interval of normal. The goat* was unusually sensitive, and was beginning to show signs of a well-marked cachexia, when the final dose caused its death.

A poor tolerance possessed by an individual horse can also very well be the cause of death. The chart No. IV shows this very strikingly.

I wish, before concluding, to express my sense of indebtedness to Professor T. Mitchell Prudden, whose support and advice have made these investigations possible. I am also under many obligations for material and suggestions to Dr. H. M. Biggs and Dr. W. H. Park.

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16. Behring. *Deutsche med. Wochenschrift*, No. 17, 1893.

April 2, 1895.

Contribution to our Knowledge of Concentric Narrowing of the Visual Field.—Groenouw (*Arch. für Ophthal.*, xl, 2) gives the following results of his observations: 1. The extension of the concentric narrowing of the visual field, due to functional lesions, depends within certain limits upon the degree of accommodative tension under which the visual field is measured. 2. The paradoxical widening of the visual field can only be clearly demonstrated when the visual field shows a greater concentric narrowing. It may be shown to exist in anæsthesia of the retina, kopiopia hysterica, hemeralopia, spastic myopia, traumatic neurosis, and tobacco amblyopia. 3. The paradoxical widening of the visual field again disappears in relaxation of the accommodation, and in its place appears the physiological narrowing of the visual field, as soon as the patient can be regarded as completely cured and the visual field has regained its normal extent.

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* This goat was the property of the New York Board of Health and only partially under my control.

THE TREATMENT OF TYPHOID FEVER WITH TYPHOID THYMUS EXTRACT.*

By ALEXANDER LAMBERT, M. D.,
VISITING PHYSICIAN TO BELLEVUE HOSPITAL.

In October, 1893, Eugene Fraenkel † reported to a medical association in Hamburg his treatment of fifty-seven cases of typhoid fever by the deep subcutaneous injection of thymus bouillon in which the typhoid bacillus had been grown and then killed. At the same time Th. Rumpf ‡ reported thirty cases treated by the dead cultures of the *Bacillus pyocyaneus* grown and prepared in the same manner as the typhoid cultures. These authors state that half a cubic centimetre of these cultures injected deep into the gluteal region, followed by the injection of one cubic centimetre twenty-fours later, is, as a rule, followed by a slight rise of temperature, with or without a chill; on the third day a decided fall of temperature, not to be accounted for by the ordinary course of the disease, and on the following day a fall still more marked. If the temperature rose again, under a continuance of the injections in increasing dosage at forty-eight-hour intervals, the patient in from six to eight days would be apyretic. The pulse comes down to normal with the fall of temperature. No untoward symptoms appeared referable to the heart's action, nor to the lungs or kidneys. When a chill accompanied the rise after the injections the heart's action did not increase correspondingly with the rise of temperature. Even when the fall of temperature was not complete, the fever changed from the continuous to the remittent type. Still more marked was the change in the general condition of the patient under the influence of the injections. The somnolence, stupor, and delirium disappeared; sleep became natural; the coated tongue cleaned; the diarrhœa disappeared, and the meteorism improved. The patients' appetite returned, and they complained of hunger, even though the successive crops of roseola continued and the spleen only slowly diminished in size. There was often profuse sweating and marked diuresis.

This treatment, however, did not prevent complications nor relapses, but when the latter did occur they quickly yielded to further injections. In some cases, however, this treatment was without effect. Moreover, the earlier the stage of the disease in which the treatment was begun, the better were the results obtained. The treatment was effective in both severe and mild cases. Fraenkel makes no mention of his death-rate; Rumpf lost two patients out of thirty—one by intestinal hæmorrhage, the other by pneumonia.

The results reported for this treatment were so striking that the writer determined to test its therapeutic value. As the number of cases likely to come under observation in a few months would be small, it was decided to confine the study entirely to the typhoid cultures.

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* Read before the Society of Alumni of Bellevue Hospital, December 5, 1894.

† *Deutsche med. Woch.*, No. 41, 1893.

‡ *Idem.*

The thymus bouillon was prepared, as was Fraenkel's, according to the method of Brieger, Kitasato, and Wassermann.* The thymus glands of calves were obtained as soon after death as possible, chopped very fine and mixed with distilled water, using for every gramme of the chopped glands two cubic centimetres of the water. This was allowed to stand in the ice box for sixteen to eighteen hours, then strained through cheese cloth and squeezed out as thoroughly as possible. This gave a cloudy mucilaginous fluid, which was alkalinized with potassium hydroxide until not quite neutral to the phenolphthalein test, but distinctly alkaline to litmus. The fluid was then further diluted one third with water, and sterilized for half an hour in steam at 100° C. The fluid then became a grayish-brown color, and the coarse coagulated flocks were filtered off through absorbent cotton after the fluid cooled. The resulting fluid was of a milky, opalescent color, and, being put in small flasks, was sterilized in steam at 100° C. for two successive days. These flasks were inoculated from a broth-culture of a typhoid bacillus obtained fresh from a spleen of a patient dead from typhoid fever. These flasks were then put into the thermostat at 37·5° C. and allowed to grow for seventy-two hours; they were then sterilized by heating in a water bath at 62° to 63° C. for twenty to thirty minutes. They were then tested on agar plates, and, if sterile, were ready for use.

Twenty-eight cases were treated. Of these, I am indebted to Dr. Northrup for those treated in the Presbyterian Hospital; to Dr. Norrie for those at St. Luke's; to Dr. Draper for those at Roosevelt; and to the courtesy of Dr. Dana and Dr. Wilcox, who allowed me to continue my treatment during their periods of service at Bellevue Hospital.

Of these twenty-eight cases, fifteen showed more or less improvement, which can, I think, be fairly attributed to the injection. Twelve did not improve under the injections, and one death occurred.

In the fifteen cases showing improvement the injections were begun usually about the tenth day, ranging from the sixth to the fifteenth. At first in two cases it was tried as Fraenkel suggests, injecting half a cubic centimetre, and on the following day one cubic centimetre, and then, at the expiration of forty-eight hours, if the temperature did not show a decided fall, injecting two cubic centimetres; and then, if the temperature still remained high, repeating the injections at forty-eight-hour intervals, increasing the amount by one cubic centimetre at each injection. Under this plan the improvement was evident, but not marked. Therefore I changed the plan of treatment, varying it somewhat in certain cases, but, as a rule, injecting increasing amounts for four or five successive days, beginning with a half or one cubic centimetre; then giving, at twenty-four-hour intervals, doses of two, three, or four, and then five cubic centimetres, as the case demanded; then waiting forty-eight hours, and, if the temperature rose again to 101° F. or over, repeating the five cubic centimetres, or even giving six or seven cubic centimetres. This gave much better results, both in regard to the temperature curve and in the general improvement of the patients.

In all cases the injections were made deep in the gluteal region, alternating on the right and left sides. In only one or two cases was there any local reaction, consisting of redness and tenderness, which subsided in one or two days.

The temperature curve follows the description given by Fraenkel. Sometimes there was, within thirty minutes to two hours after the injection, a rise of temperature with or without distinct chill, and at times this rise or this chill was followed by profuse sweating. In two cases the rise of temperature was accompanied with nausea and vomiting and headache. As a rule, after the third injection, the temperature curve showed a lower range, followed after the fifth injection by a decided fall of several degrees, even to normal, in the following twenty-four hours. The continuous type of fever curve often changed to the remittent type while falling. At times no abrupt fall occurred, but the fever ranged lower and gradually disappeared by a long lysis.

The pulse showed a decided improvement following the injections both in its frequency and in its force and tension. With the chill and rise of temperature after injections, as a rule, the pulse did not show a proportional increase in frequency.

The general condition of the patient showed the greatest improvement, the classical picture of the third week of typhoid being entirely absent. The mental condition improved; the patients lost their apathy and became bright, the sleep became more natural, the delirium ceased, and the diarrhœa stopped. When constipation was present instead of diarrhœa, the injections had no influence whatever upon it. Marked hunger appeared in several cases coincident with the fall of temperature. The tongue usually cleaned and became moist before the injections were completed. In one case, after the third injection, partial suppression occurred, the patient passing only six ounces of urine in twenty-four hours. This symptom disappeared in the following twenty-four hours, the patient showing no bad effects from it. Five cases of relapse occurred in the sixteen cases favorably affected by this treatment. These relapses were not treated in every case with further injections, but those so treated quickly subsided. The roseola, however, was not affected, and the spleen only slowly subsided.

In the twelve cases showing no benefit from the treatment, the injections were begun at a time varying from the ninth to the twenty-second day of the disease, averaging on the fifteenth day. This is five days later than in the group of improved cases, and bears out the statement of Rumpf that the earlier in the disease the injections are begun the more chance there is of a beneficial action. In three cases of this group where the injections were begun on the twentieth and twenty-second days of the disease the temperature fell rapidly after the injections, but it was so late in the disease that one can not be sure that convalescence would not have begun at that time had the injections been withheld. In the other eight cases there is no doubt that the injections did not result in any benefit to the patients.

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* *Zeitschrift für Hygiene und Infectionskrankheiten*, vol. xii, p. 147.

On the other hand, in no one of the twenty-eight cases was there any harmful effect observed due to the injections. The case that proved fatal was a very severe one, the patient being in an extremely poor general condition when the injections were begun. On the eighth day but three injections were given of one, two, and three cubic centimetres, respectively; tub baths were also given during and after the injections in this case, but the patient died from the severity of the disease three days after the last injection, and on the fifteenth day of the disease.

The cases here recorded were taken as they came to the hospitals, and were mild, moderately severe, and severe. The diagnosis was purely clinical.

During the past year three other authors have published small series of cases treated by this method. Von Jaksch,* in Prague, used the original thymus bouillon of Fraenkel and Rumpf, treating nine cases with the typhoid bouillon and eight with the pyocyaneus. In one severe case coming under his care in the second week, with a temperature of 104° to 105° F., after five injections with typhoid thymus bouillon the patient was apyretic and the temperature did not rise again. In the remaining eight cases so marked a result did not occur. It also was evident that with the pyocyaneus culture a continuous can be changed to a remittent fever, but in severe cases this result was not obtained. He did not obtain valuable results with the treatment, as he did not consider that he had so modified the typhoid that it proved of essential benefit to the patient, although he had shortened the duration of the disease. Moreover, the injections were unpleasant to the patients, as they often caused severe pain. In one severe case which came to autopsy, sterile pyocyaneus pus was found in the injection wound.

Kraus and Buswell,† in Vienna, tried the pyocyaneus thymus bouillon in twelve cases. They injected into the thigh and had a limited lymphangeitis follow and abscesses in two cases. Cases were severe and moderately severe, without complications, but with two deaths. The stage of the disease was the second or third week, so far as the history could prove this. Only three cases showed positive results on temperature. In four or five further cases such a supposition was fairly possible, in the rest it was quite out of the question. There was no influence on the curve as continuous or remittent. The pulse fell with the temperature; the diarrhœa did not improve, the roseola persisted, and the spleen continued large. Only one case showed marked general improvement, though this case showed no marked fall of temperature. In this case there was distinct increase of strength, and the stupor and nightly delirium disappeared.

These authors are not at all favorably impressed with the treatment.

In summing up the results in the cases recorded here, I certainly have not obtained the brilliant results alleged by Fraenkel and Rumpf. It seems, however, to have been of benefit in a little more than half the cases tried, and where it has benefited it certainly modified the severity, and in some cases shortened the duration of the disease. I wish to express my sincerest thanks to Dr. J. W. Brannan for his kindness in treating many of the cases and giving them to me to report, and to Dr. T. M. Prudden for his many valuable suggestions to me.

ABSCESS OF THE BRAIN.*

By N. B. CARSON, M. D.,

ST. LOUIS.

An eminent surgeon of London, ten years ago, is said by McEwan to have asserted that to see an abscess of the brain, even post mortem, was an event of a lifetime. This seems strange, as I am quite sure there is not a surgeon in this city of twenty years' experience who has not seen more than one case of abscess of the brain during the first ten years of his practice, and the opportunities afforded here are by no means to be compared with those of the great city of London. During twenty odd years of practice I have seen quite a number of abscesses in this region, arising, some of them from injury, some of them (by far the greatest number) from ear disease, one from nasal trouble, and one, a recent case, from a most unique cause—a bite of a wood tick upon the scalp.

The first case of the kind that I now call to mind was under my care in the St. Louis Mullanphy Hospital in the year 1872, during the absence of Dr. Gregory, whose case it was:

The patient, a boy about seven years of age, had fallen some months before from the third story window to the pavement below, striking upon the top and side of the head over the parietal region. The skull was very badly mashed, and at the time of the injury and subsequently a number of fragments of the cranium were taken away. When he was brought to the hospital there was a large suppurating wound through which the brain substance protruded (hernia cerebri). I, at various times, removed pieces of dead bone and sliced off portions of the protruding brain substance. At one point (I think it was behind the Rolandic fissure), after some days, I noticed a soft fluctuating spot, which I accidentally opened while examining. As a result a considerable quantity of pus was discharged. I did not attempt to wash or drain the cavity; I did not even introduce a probe; I thought I had already done enough. Suffice it to say that after many weeks in the hospital the child made a good recovery and left with the wound almost closed.

Another case occurred at the same time that the one described above was under my observation.

The patient, a young man about twenty-two or twenty-three years of age, a waiter by occupation, had, in a quarrel, been struck with a fork, the prongs of which were broken off, one in the soft tissues, where it had formed an abscess, and two had been driven through the bone into the brain substance. The region of the injury was the left temple. I saw the case three weeks after the stabbing. The prong buried in the soft tissue had been removed by the physician first in attendance. The second prong I removed after I was called. This one went through the bone into the brain at least an inch. The third was removed post mortem, and, like the one I had removed, extended through the bone about an inch into a large abscess in the brain substance. There were absolutely no symptoms of cerebral disturbance until within three or four days of the patient's death, when he commenced complaining of severe headache, and it was noticed that he was more or less drowsy and indifferent to his surroundings. This condition gradually increased until he became profoundly comatose. The diagnosis of brain abscess was made by Dr. Hodgen, who saw the case with me in consultation a short time before the patient's death. Upon removing the scalp, after death, the third prong of the fork was found where it had been broken off almost even with the surface of the bone. Upon removing the calvarium an abscess was found involving the frontal lobes.

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* *Prager med. Wochenschrift*, 1894, p. 135.

† *Wiener klin. Wochenschrift*, 1894, pp. 511, 595.

* Read before the St. Louis Surgical Society, January 23, 1895.

Still another case is worth mentioning, that of a child of four years of age, who suffered from nasal catarrh, the result of an injury. The infection extended through the cribriform plate of the ethmoid to the brain and formed an abscess which resulted in death.

Besides these cases, which I saw in ante-localizing days, I have seen a number of abscesses of the brain the result of disease of the middle ear, and the majority of them have been in adults. Within a period extending a little over three years I have seen nine cases of abscess of the brain, and of this number eight have resulted from disease of the middle ear. Of all these cases, two are of particular interest. I deem them worthy of a detailed description:

Last January I was called upon to open the mastoid antrum on account of a suppurating inflammation of the middle ear in a lad of fifteen years. I had not seen the case until I went to the house to operate, when I learned that the patient had had for several years, off and on, a discharge from the ear. Two weeks or thereabouts before I saw him he had had an attack of the old trouble, and Dr. Lemoine, the family physician, sent for Dr. Jones, who treated him for some days until the ear symptoms were much improved. Again the pain in the ear became intense and Dr. Jones was called and decided that the antrum should be opened. I was then sent for and found the ear discharging freely; while pressure over the mastoid caused pain, there was no perceptible swelling. The pulse was 100; the temperature before my arrival was over 102°. The operation was done at once, the antrum and middle ear curetted. That evening the temperature was normal and the pulse 80. The night after the operation was passed well; once during the night he vomited, but this was attributed to the chloroform. During the next day he was bright and seemed much better, except that he complained of pain in the back of the head. The pulse was slow, only 68, but otherwise good. The temperature during the day was a little over 99°; there was also more or less vomiting. I now began to fear abscess of the brain. The second night was not as good as the first, although he rested fairly well. The next morning he was obtuse, and it was some time before I could get him to notice me, but this I attributed to the fact that I was about to dress the wound and he had no kindly feelings toward me, as after I had finished he was bright and talkative, asking me a number of questions. I forgot to mention that I dressed the wound daily and that the washing out of the ear always caused severe pain in the head, which subsided immediately.

At my evening visit the nurse told me that he had had a good day, seeming more like himself than he had for some time. The vomiting, however, had increased and the temperature fell below normal; the vomiting was always preceded by nausea and generally followed the introduction of food into the stomach, of which during the day he had taken a fair amount. He still complained of pain in the back of the neck. The third night he was very restless. I now made up my mind that we had an abscess of the brain to deal with. The next morning he was wild and very profane and vulgar in his language. The temperature was now most of the time subnormal, while the pulse varied from 68 to 78 and was small and compressible. The tendon reflexes were exaggerated and vomiting continued, and he would frequently cry out on account of the pain in the head. Emaciation was marked.

That evening, the third day after the operation, I met Dr. Bremer, Dr. Lemoine, and Dr. Jones in consultation, and they agreed with me as to the presence of an abscess in the brain, but it was decided that the patient was too weak for any operative interference at that time. Heart tonics, nutrient enemata, etc., were ordered in hopes of improving the patient's condition. The next day the patient seemed somewhat better, while the cerebral symptoms remained unchanged. The two days following showed little or no change.

After another consultation with the same gentlemen it was decided to operate as a forlorn hope. Everything was explained to the parents and their consent obtained. One week from the time of the first operation, an opening was made through the cranium an inch and a quarter behind the middle of the external meatus and three fourths of an inch above Reed's base line. Into this opening the brain protruded and was entirely free from pulsation. The temporal lobes were first explored with negative results. The opening was then enlarged downward with the rongeur forceps and the cerebellum explored, when there was a gush of pus. With a forceps following the director this opening in the brain was enlarged, and the abscess cavity emptied. The abscess must have involved almost the entire cerebellar hemisphere, judging from the quantity of pus poured out. The patient was returned to bed in a very bad condition, and survived the operation only an hour and a half.

This case was remarkable only in the fact that an abscess of that size could exist and at the same time manifest comparatively few symptoms. I was assured by the different members of the family that they had at no time noticed any change in his disposition. Another remarkable feature about the case is, that he was able to go through, without fault, difficult gymnastic exercises, dance, play baseball, football, etc.

The following very unique case came under my care at the St. Louis Mullanphy Hospital in the latter part of June last:

The patient, a well-developed boy of eight years of age, was a resident of the southern portion of this State. From his history it was learned that about the 11th day of last May he had been bitten on the right side of the head by an ordinary wood tick, common to this region. About a week later it was noticed that the part was inflamed and that the patient had fever. This condition lasted for three weeks, when an abscess formed under the scalp limited by the eyebrows in front and extending almost to the parietal eminence behind, the median line above, and the zygomatic arch below. The abscess was opened by the attending physician, and healed rapidly after it had been emptied. On the 8th of June he was seized with a spasm which involved, first the muscles about the outer angle of the left eye, then the angle of the mouth, then the arm, and finally the leg of the same side. This condition is said to have lasted five hours, during which time the patient was speechless, and, part of the time at least, unconscious. This left the entire left side more or less paretic, but especially about the angle of the mouth.

On the 22d of June he had another spasm, not so severe as the preceding one. This lasted three hours, during all of which time the patient retained consciousness and the power of speech, but when it passed off, the paresis of the face was almost complete, while that of the body was decidedly increased. This spasm began with twitching of the angle of the mouth; from there it went to the eye, then to the shoulder, arm, and leg. About this time an abscess in the apex of the left lung was discovered which opened into a bronchial tube and discharged. I saw him first on the 29th of June. At that time he was much wasted. Upon physical examination, found the skin pale, the muscles soft and flabby. On the right side of the head was a soft, fluctuating tumor, an abscess of about the size of a large hickory nut. The face and right side of the body were almost completely paralyzed. The family history was good, and up to a short time before he was bitten he had been healthy and strong. The mother stated that she had noticed some time before this that he was languid and not in his usual good health, and complained of feeling tired, etc. The heart was healthy. The pupils were found to respond normally. The tendon reflexes increased, more marked on the left side; ankle and knee clonus marked on the left side, slight on right; the senses of touch and sensation were unimpaired. The pulse was 81, irregular, intermitting, a beat now and then, becoming alternately fast and then very slow. He was also very impatient, not brooking delay, and complained of hunger continually, the appetite never seeming to be gratified. The mother stated that he had always been of a good disposition, and while he possessed a good appetite, it was not inordinate.

On the 4th of July the abscess on the scalp was opened by one of my assistants and washed. An examination of the urine showed hyaline casts with adherent crystals of the phosphates; no albumin, crystals of the urates, phosphates, and indican. Dr. Le Beau and Dr. Wolfner, who kindly examined the eyes, report, July 6th, that when at rest the eyes were turned upward and to the left; the pupils were slightly dilated and responded promptly to light; the fundus was normal, except the disc, which had a watery, suffused look suggesting œdema, but there was absolutely no swelling. The veins were somewhat enlarged, while the arteries were normal.

On the 9th of July I operated and, upon removing the scalp, found that the bone at the site of the abscess, above referred to, had been entirely destroyed so as to expose the dura; the opening was enlarged downward and forward. The dura upon its outer surface was covered with a dirty grayish exudation; when incised it was found to be much thickened, while its under surface was perfectly healthy, as were also the underlying membranes and brain surface. When the dura was incised, the brain substance protruded to such an extent that I feared it might rupture. There was an entire absence of pulsation. Upon introducing a small grooved director downward and forward there was a discharge of yellow, healthy-looking pus (about two ounces). The opening was enlarged by carrying forceps along the director; the pus was freely discharged, the cavity washed, and a drain introduced. The patient made a good but slow recovery, and when he left the hospital on August 9th he was able to walk with little assistance. The wound had entirely healed except at one point, from which came a slight discharge due to a small necrosis of the cranium.

November 22d.—The patient visited me to-day entirely recovered in general health, all signs of sickness having disappeared, except that he is totally blind, a condition which has come on gradually since his return home. Dr. Le Beau and Dr. Wolfner again examined the eyes and report that they found the pupils widely dilated without any perception of light; the fundus mottled with atrophic chorioiditis spots, the disc atrophic. Dr. Ravold, who took the pus discharged from the abscess at the time of the operation, reports that he got a pure culture of *Staphylococcus pyogenes aureus*, thus confirming the diagnosis of infective abscess of the brain and lung.

Now the question presents itself as to how this infection reached the brain, as we have seen that the under surface of the dura was perfectly healthy, as was also the underlying membrane as well as the brain surface. Was its position a coincidence, or was it a direct infection from the abscess under the scalp? I think it was direct, and occurred through the communicating veins which, in fœtal life, extend through the dura into the brain. Some of these veins, like similar vessels in other parts of the body, may have remained patulous and conveyed the micro-organism from the surface to the interior of the brain.

In this case we also have a confirmation of the theory as to the location of motion and the senses of touch and sensation; the area in front of the Rolandic fissure being purely motor, while the tactile senses and sensation are said to be confined to the posterior regions. Here the abscess was, so far as it was possible to determine, limited to the two lower frontal convolutions, and precentral, and as a result the motor functions were markedly involved, while sensation and the tactile senses remained perfect, a most careful examination having been made to determine this point.

How is the resulting blindness to be explained? There was evidently a certain amount of encephalitis, involving, in all probability, a great portion of the anterior part of the respective hemisphere, together with the optic commissure, and the blindness was possibly a result of the inflammatory changes in the commissure and optic nerves.

A similar case is described by Williamson in the *British Medical Journal* for February 1, 1891.

I forgot to mention that when the patient left the hospital there was a large cerebral hernia. This hernia was still present when I saw him in November, but had decidedly diminished. Some time after his return home a small piece of dead bone was removed from the sinus, existing when he was discharged from the hospital, after which it rapidly healed.

REPORT OF A CASE OF

VERRUCÆ ACUMINATÆ OF THE PENIS,

CAUSING, THROUGH THE ABSORPTION OF THEIR SEPTIC EXUDATION, PHIMOSIS AND LYMPHANGEITIS, FOLLOWED BY A DORSAL SLOUGH.*

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THE patient, C. L., aged eighteen years, French, an omnibus in an uptown restaurant, presented himself at the French Hospital of this city, in February last, for treatment.

History.—The patient stated that he had never had any venereal disease; that six months ago, two weeks after connection, he noticed a growth under the prepuce near the frænum, which caused him no pain and very little inconvenience. This continued to increase slowly in size until a condition of partial phimosis existed. About a month ago, or one week before entering the hospital, the dorsum of his penis became red, inflamed, swollen, and painful. This inflammatory condition increased, and rapidly involved the entire prepuce and extended well up on the organ. It was very painful and tender.

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* Presented before the Society of Dermatology and Genito-urinary Surgery, April 15, 1894.

Examination on entering the Hospital.—The patient was a pale, lymphatic-looking boy. Locally he revealed an organ very much enlarged and having an inflamed, angry look. The circumference, measured over the site of the corona, was eight inches and a half. The prepuce was very œdematous, especially on its lower surface, where it measured an inch and a quarter in thickness. The tissues of the preputial margin were bluish in color and very tense. Upon the dorsum, following the course of the dorsal lymphatics, was a red and angry-looking area of inflammation, evidently a lymphangeitis, extending to within an inch of the pubes and nearly encircling the organ. On retracting the prepuce as much as possible, cauliflower excrescences were disclosed growing from the glans and balano-preputial membrane, extending backward from the everted lips of the meatus urinarius and the margin of the prepuce in such masses that the glans was almost hidden from view. From this inflamed subpreputial area a foul, fœtid, purulent discharge oozed. The inguinal glands were not enlarged. This condition was evidently due to an absorption of the septic matter discharged from the verrucæ.

Treatment.—Subpreputial irrigations of one in fifteen thousand bichloride solution every three hours, and a dressing of lead and opium wash externally.

The condition rapidly grew worse; a dorsal abscess developed and burst subpreputially, thus increasing the foul discharge already existing. Two days later a slough of that portion of the dorsal tissue over the course of the dorsal chain of lymphatics and just behind the corona occurred, leaving a gangrenous communication between the outer and inner preputial surfaces about half an inch in diameter. The margins of this opening were covered by a nasty slough, and gave rise to an exceedingly fœtid and necrotic odor. A dorsal incision was then made from the margin of the prepuce into the area of slough. The edges of the wound were touched with a saturated solution of nitrate of silver. The balano-preputial mucous membrane, the inflamed verrucæ, and the sloughing and gangrenous tissue into which the dorsal incision opened were then washed thoroughly with peroxide of hydrogen and dressed with a powder of charcoal and iodoform, equal parts, and cotton pledgets. For two or three days after this the organ was irrigated twice a day with a solution of permanganate of potassium and dressed with charcoal and iodoform. When the fœtor had disappeared the charcoal and iodoform dressing was changed for one of equal parts of boric acid, bismuth, and calomel.

Two weeks ago, or a week after the dorsal incision, the patient was etherized and the verrucæ were removed from the glans and balano-preputial membrane by a sharp curette. As considerable hæmorrhage occurred during the curettage, a ligature was put about the penis until the operation was finished, when the organ was irrigated with a hot bichloride solution, strength 1 to 2,000, and dressed with pledgets soaked in the same solution. A bandage of bichloride gauze was then wound around the organ, thus making pressure on the glans and balano-preputial membrane both internally and externally. After this the patient was irrigated twice a day with a 1-to-2,000 bichloride solution, and dressed with a powder of equal parts of boric acid, bismuth, and calomel, with cotton pledgets. One week ago, the curetted surface having healed, circumcision was performed. The parts were afterward dressed with iodoform and iodoform gauze.

I now present him to you, gentlemen, for examination, perfectly cured. The healing after the circumcision was by first intention, notwithstanding the septic condition in which the organ had previously been. There is now no evidence of any verrucæ, and with the exception of a slight thickened condition on the lower surface there is nothing to show the trouble that he has so recently gone through with.

THE DIPHTHERIA BACILLUS IN A PNEUMONIC LUNG.

INTRODUCTORY COMMUNICATION.

By A. P. OHLMACHER, M. D.,
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The novel feature of this case lies in the discovery of the diphtheria bacillus in the substance of the affected lung in a case of primary, right-sided, lobar pneumonia, complicated with an acute purulent meningitis.

In brief, the history of the case * is as follows:

Clinical Abstract.—H. S., forty-six years of age, was transferred from the male insane department of the infirmary to the wards of the City Hospital, and assigned to the service of Dr. A. F. Spurney, January 30, 1895. On account of the violent type of his insanity very little could be learned from the patient concerning the present illness, which was noted at least two days before he was removed to the hospital. On admission, the pulse was 110, temperature 102·4° F., respiration quickened and superficial, and a marked dullness was discovered over the lower lobe of the right lung. The area of dullness gradually extended until the whole right lung became involved, and all the physical signs of pulmonary solidification were pronounced; the temperature curve was irregular, with morning remissions; the patient became unusually delirious the last two days of his illness, and he died on February 11th. Nothing in the patient's symptoms directed attention to his throat, and no history of a previous throat trouble could be obtained. No false membrane was noted in the mouth or on the gums.

Autopsy Abstract.—The post-mortem examination was made twelve hours after death, with all the thoroughness possible with the inadequate facilities afforded by this hospital. Omitting all details, it may be said that the prominent gross pathological lesions were a complete gray hepatization of the right lung, which was fixed in its pleural cavity by extensive recent fibrinous adhesions, and an exquisitely marked, acute, purulent meningitis. No examination of the mouth or throat was made.

During the progress of the autopsy several tubes of Loeffler's blood-serum culture medium were inoculated from the substance of the affected lung and from the meningeal pus, with the observance of rigid bacteriological precautions. Cover-glass smears were made from the pus under the pia mater and from the tissue of the diseased lung. Pieces of the various tissues were fixed in corrosive-sublimate solution and preserved for microscopic study.

Bacteriological Abstract.—The smear preparations made from the meningeal pus, when stained with gentian violet after Gram's method, and counterstained with formalin-safranin, showed the *Diplococcus lanceolatus* as the only organism in the midst of the red-stained pus cells. Mixed micrococci, some of them encapsulated like the diplococcus of pneumonia, were found in the stained specimens of the lung smears.

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* I am indebted to Dr. Frost, resident physician at the Cleveland City Hospital, for the clinical data, of which the merest outline is here given.

From the two tubes of Loeffler's medium inoculated with the pus from the meninges the diplococci of pneumonia were found unaccompanied by any other bacteria.

Both the tubes of Loeffler's serum inoculated from the substance of the right lung showed pronounced cultures after twenty-four hours' stay in the incubator, and plates of glycerin agar were prepared from these cultures. On both sets of these plates two distinct kinds of colonies developed, and a subsequent study showed one of them to be composed of the *Staphylococcus aureus* and the other of *Bacillus diphtheriæ*. The diplococcus of pneumonia could not be obtained in these cultures from the lung.

The diphtheria bacillus obtained from this case has been studied through several generations and has been found to possess the usual morphological and physiological characteristics of this species. It is a moderately long example of this bacillus, with a tendency to form the irregularities in shape usual in the longer varieties. It is non-motile, does not liquefy gelatin, does not coagulate milk, does not grow visibly on potato, and produces acids in early cultures in glucose-litmus-agar.

As shown by the effects of inoculations into guinea-pigs, the pathogenic virulence of this particular example of the diphtheria bacillus is of a low grade. Two guinea-pigs were subjected to subcutaneous injections of 0·5 c. c. of a twenty-four hours' bouillon culture of the organism, and no marked constitutional disturbance was produced. The injections gave rise to local areas of induration about the needle puncture such as are always seen when an attenuated variety of the diphtheria bacillus is employed, or when the animal has a partial immunity against this species of bacteria.

PATHOLOGICAL LABORATORY,
MEDICAL DEPARTMENT, UNIVERSITY OF WOOSTER.

TRACHEOTOMY IN EMERGENCIES.

BY HUGH H. YOUNG, A. M., M. D.,
ASSISTANT IN SURGERY, JOHNS HOPKINS HOSPITAL DISPENSARY, BALTIMORE.

THE ordinary operation of tracheotomy is quite simple, with a full set of appropriate instruments at hand, but often the necessity for the operation arises suddenly and when we are not prepared for it, and undoubtedly many a child with laryngeal diphtheria has gone to its grave because the physician feared to do the operation without the customary instruments and tubes.

In a recent case I was placed in such a position, with asphyxia approaching and no instruments at my command. I therefore offer the means I adopted, with the hope that it may assist some fellow-practitioner in a similar strait:

A child two years and a half old came into my hands with diphtheria of three days' standing. The membrane could be seen across the lower half of the pharynx, and the larynx was so badly involved that the child could not speak, and the respiration was rapid and wheezing in character. With the assistance of Dr. P. J. F. Martenet, I injected a bottle of No. 1 Behring's antitoxine. On the next morning the child was much improved, and the voice and breathing better. We injected another dose of antitoxine, and left, considering the child almost out of danger. When I returned at 9 P. M., however, the condition was much worse, the respiration gasping, and the child's face becoming cyanotic, showing gradually increasing occlusion of the trachea or larynx.

Not being prepared for intubation or tracheotomy, and being in the country five miles from any instrument house, we had given up all hopes of the child's recovery, when, finding a small glass tube, the thought struck me that we might utilize it for a tube.

This tube was of about the size of a small lead pencil. Removing the chimney from a lamp and twirling the tube rapidly in the flame, I was soon able to bend it into the proper curve for a tracheotomy tube. It was then cut off by making a nick in it with a file or dull knife and breaking over the ends of the thumbs. The rough ends were rounded by holding in the flame.

After injecting cocaine subcutaneously in the median line of the neck, I made an incision down to the trachea with a pocket scalpel which I happened to have.

I may say that as I desired to avoid the isthmus of the thyreoid and go below it, the incision was made from the second tracheal ring downward for an inch and a half.

All hæmorrhage having been stopped by hot compresses, a longitudinal incision three quarters of an inch long was then made into the trachea, and the child turned on its belly so that no blood would flow into the trachea.

Hæmorrhage having ceased, the child was turned on its back and the bent glass tube inserted, and in a few minutes the breathing became more regular, the cyanosis disappeared, and the child went to sleep.

As it now was, the tube had to be held in place, so I determined to improvise another which could be fastened around the neck with tapes.

So, bending another tube as before, I wrapped it with thread to prevent breaking. A cross piece was then made of wood half an inch wide and an inch long, a hole being cut in the middle to receive the glass tube. Holes were also cut in each end to receive the tapes. Having fastened the cross piece to the tube by wrapping it with thread, this improvised tracheotomy tube was inserted into the trachea and secured in position by the tapes around the neck.

The child slept well all night, and by the next evening the antitoxine had got in its work, and the larynx was so cleared of membrane that the tube was removed entirely. In a few days recovery was complete.

As tracheotomy wounds are always infected, it is the custom to allow them to heal by granulation and not to bring the edges together by sutures.

In this case, having been able to stop the suppuration by vigorous antiseptic treatment, I decided to risk it, and drew the edges of the broad, gaping wound together with sutures. The result was very satisfactory; no stitch-abscess or any suppuration followed, and in place of a broad, ugly scar a small linear one resulted.

It would seem that many unsightly scars from infected wounds about the face and neck could be avoided by suturing as soon as suppuration had been cured. In this case the edges were well cauterized by nitrate of silver before being drawn together.

THE

NEW YORK MEDICAL JOURNAL,

A Weekly Review of Medicine.

Published by
D. Appleton & Co.

Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, APRIL 27, 1895.

THE AMERICAN MEDICAL ASSOCIATION.

Early in May, before another issue of the *Journal* will have had time to reach the more distant of our readers, the great national organization will be in session in Baltimore. Many indications point to a meeting more than ordinarily noteworthy. In the first place, the attendance is likely, we think, to be unusually large. Baltimore is an exceptionally attractive town, and the hospitality and geniality of its people are proverbial. A sojourn in Baltimore for almost any purpose is a pleasure in itself. Add to this the reflection that the members of a profession are to meet each other, many of them for the first time, and the thought is at once raised that the attractions of the occasion will prove more potent than those that are wont to attend great gatherings. Great as are Baltimore's own beauties, it is not they alone that make it a peculiarly winsome place for a meeting that is to last for several days, but its fertility in opportunities for short excursions to localities that every American longs to see once in his lifetime comes into play also. The national capital, the home of the incomparable Washington, and the Naval Academy are all within easy reach. It is, indeed, difficult to think of another city in the country that could serve as the starting-point of so many short jaunts to places of such surpassing interest.

But, quite apart from the matter of the place of meeting, there seems to be a feeling pervading the profession that this year's sessions of the American Medical Association are to be pleasanter, more profitable, and perhaps more important than they commonly are. Men appear to regard it as more than ever their duty to be present at the meeting. Precisely why this is the case it would not be easy to say; perhaps it would be profitless to inquire. Whatever may be the reason of it, the very existence of the feeling—and we are sure it does exist—is a cause of real gratification. We expect to record the fact that the Baltimore meeting has given unusual satisfaction to the profession. We look to see its proceedings characterized by dignity and harmony; to see the association strengthen its hold, already firm, on the hearts of the individual medical men of the United States; to see its resources notably augmented, so as to enable its journal to keep on in the path of improvement that has of late been very plainly discernible in its appearance; in short, to see the representative organization of the American medical profession make a stride on a course that has always had a high goal as its object.

MINOR PARAGRAPHS.

THE LICENSE TO PRACTICE IN ILLINOIS.

In another column we print some resolutions recently passed by the faculty of the Northwestern University Woman's Medical School reflecting upon the Illinois State Board of Health for having, as is alleged, granted licenses to candidates who had been unable to pass the examination for the degree of doctor of medicine in that or some other medical school. We can not suppose that such a public criticism of the board would be made by a college faculty unless there were facts to warrant it, but it is to be hoped that the board will speedily do away with all ground for complaint in the matter, particularly when we call to mind its past reputation as a supporter of high standards.

A PHYSICIAN ON ORIENTAL MATTERS.

We always feel gratified when a member of the medical profession goes beyond the limits of his calling to undertake any honorable and beneficent work for the community, whether in literature, in public speaking, or in politics. We are therefore pleased to learn that this (Saturday) evening Dr. William H. Thomson is to entertain his fellow-members of the Century Club with a paper entitled Arabia, Islam, and the Eastern Question.

A NEW MONTHLY JOURNAL.

A new journal of general medicine and surgery, entitled *Medicine*, has made its appearance in Detroit. The first number is dated April, 1895. It contains sixty-four pages of reading matter, including original articles by Dr. W. L. Baum, Dr. D. A. K. Steele, Dr. H. A. Hare, Dr. G. F. Lydston, Dr. W. S. Christopher, and Dr. S. S. Bishop, also book notices and abstracts. It is edited by Dr. Harold N. Moyer, of Chicago.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 23, 1895:

DISEASES.	Week ending Apr. 16.		Week ending Apr. 23.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	6	2	7	5
Scarlet fever	102	11	97	8
Cerebro-spinal meningitis	1	1	4	4
Measles	214	14	245	28
Diphtheria	231	34	208	37
Small-pox	0	0	0	0
Tuberculosis	99	107	166	105

The Medical Association of Georgia.—At the recent annual meeting a section in ophthalmology was organized. The chairman of the section is Dr. J. Lawton Hiers, of Savannah.

The New York Lying-in Asylum.—Dr. Samuel Marx and Dr. J. Clifton Edgar have been appointed visiting obstetricians to the asylum.

The Association of Acting Assistant Surgeons of the United States Army will hold a special meeting in Baltimore on the 8th of May.

The College of Physicians and Surgeons of Chicago.—We learn that Dr. Bayard Holmes has again undertaken the office of dean of the faculty.

The National Academy of Sciences.—It is announced that Dr. William H. Welch, of Baltimore, has been elected a member of the academy.

Change of Address.—Dr. Edmund C. Wendt, to No. 118 West Seventy-ninth Street, New York.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 14 to April 20, 1895:*

Ebert, Rudolph G., Captain and Assistant Surgeon, is granted leave of absence for two months, to take effect on being relieved from duty at Fort Huachuca, Arizona.

Kendall, William P., Captain and Assistant Surgeon, is granted leave of absence for six months, with permission to go beyond sea, to take effect upon his relief from duty at Fort Columbus, New York Harbor.

Smith, Joseph R., Colonel and Assistant Surgeon General. By direction of the President the retirement from active service, April 18, 1895, is announced.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending April 20, 1895:*

De Valin, C. M., Assistant Surgeon. Detached from the U. S. Steamer Vesuvius and ordered to the U. S. Revenue Steamer Vermont.

Lowndes, C. H. T., Passed Assistant Surgeon. Detached from the Coast Survey Steamer Hassler and ordered to the Mare Island Hospital.

Pickrell, G. Mc., Passed Assistant Surgeon. Detached from the U. S. Steamer Newark, ordered home, and granted two months' leave of absence.

Smith, Howard, Surgeon, retired. His leave of absence is extended six months, with permission to remain out of the United States.

Stone, L. H., Assistant Surgeon. Ordered to the U. S. Steamer Newark.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending April 15, 1895:*

Purviance, George, Surgeon. Detailed as chairman of retiring board for physical examination of officers of Revenue Cutter Service. April 8, 1895.

Austin, H. W., Surgeon. Detailed as member of retiring board for physical examination of officers of Revenue Cutter Service. April 8, 1895.

Carter, H. R. Detailed as recorder of retiring board for physical examination of officers of Revenue Cutter Service. April 8, 1895.

Glennan, A. H., Passed Assistant Surgeon. Granted leave of absence for three days. April 9, 1895.

Stoner, J. B., Passed Assistant Surgeon. When relieved, to proceed to Philadelphia, Pa., for duty. April 5, 1895.

Guiteras, G. M., Passed Assistant Surgeon. Granted leave of absence for six days. April 5 and 8, 1895.

Perry, J. C., Passed Assistant Surgeon. To proceed to Portland, Ore., and assume command of service. April 5, 1895.

Eager, J. M., Passed Assistant Surgeon. To proceed to Gulf Quarantine Station for temporary duty. April 5, 1895.

Stewart, W. J. S., Assistant Surgeon. To proceed to Philadelphia, Pa., for temporary duty. April 9, 1895.

Norman, Seaton, Assistant Surgeon. To proceed to Norfolk, Va., for temporary duty. April 9, 1895.

Cumming, H. S., Assistant Surgeon. To proceed to Boston, Mass., for temporary duty. April 9, 1895.

Society Meetings for the Coming Week:

Wednesday, *May 1st:* State Medical Society of Arkansas (first day—Little Rock); Connecticut Medical Society (first day—New Haven); New York Academy of Medicine (Section in Public Health); Society of Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Essex, North (annual—Haverhill), and Plymouth (annual), Mass., District Medical Societies; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

Thursday, *May 2d:* State Medical Society of Arkansas (second day); Connecticut Medical Society (second day); New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Medical Society of the County of Orleans (semi-annual—Albion), N. Y.; Ocean, N. J., County Medical Society (Tom's River); Cuyahoga, O., County Medical Society; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

Friday, *May 3d:* State Medical Society of Arkansas (third day); Connecticut Medical Society (third day); Practitioners' Society of New York (private); Baltimore Clinical Society.

Saturday, *May 4th:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society, New York (private); Miller's River, Mass., Medical Society.

Births, Marriages, and Deaths.

Married.

Baldwin—Field.—In New York, on Wednesday, April 24th, Dr. Frederick A. Baldwin and Miss Mary E. Field.

Lambert—Cheney.—In South Manchester, Conn., on Tuesday, April 23d, Dr. Alexander Lambert, of New York, and Miss Ellen W. Cheney.

McCoy—Sessums.—In Columbus, Miss., on Wednesday, April 17th, Dr. Ambrose McCoy, of Jackson, Tenn., and Miss Mamie Sessums, of Columbus.

Died.

Dickson.—In Pittsburgh, on Saturday, April 20th, Dr. Joseph N. Dickson.

Lawton.—In Rome, N. Y., on Thursday, April 18th, Dr. Elon J. Lawton, in his sixtieth year.

Madden.—In Woonsocket, R. I., on Sunday, April 21st, Dr. P. H. Madden, in his sixty seventh year.

Wade.—In Irvington, N. J., on Saturday, April 20th, Dr. Joseph L. Wade, aged sixty-six years.

Letters to the Editor.

THE EFFECT OF SERUM INJECTIONS ON THE BLOOD.

New York, *April 15, 1895.*

To the Editor of the New York Medical Journal:

Sir: In the last issue of the *Journal* I find among the objections to the injection of antitoxine serum the possibility of its globulicidal action. Dr. Winters exclaimed: "Horse serum dissolved human blood corpuscles," and Dr. Armstrong states in his letter that those who heard Dr. Winters's criticism "can not but feel that an important factor has been overlooked in the consideration of the treatment of diphtheria with this substance (antitoxine serum), and that factor is the globulicidal power of alien serum on the blood of an animal into which it is injected." I am quite sure that the gentlemen err on this point. Here are my reasons:

1. All statements on the detrimental effect of heterogeneous blood have reference *only to the intravenous transfusion* with the blood of another species; as yet no one has ever raised the contention that the *subcutaneous* injection of foreign blood showed globulicidal effects. Even for the peritoneal cavity, from which absorption certainly occurs far more rapidly than from the subcutaneous tissue, Hayem, the authority cited by Dr. Armstrong, says that the infusion of alien blood into it is of no detriment to the blood of the recipient (*Compt. rend.*, t. xcviii, No. 12). As Dr. Armstrong's quotations deal only with transfusion (or direct contact of the heterogeneous blood), he is apparently not conscious of the fact that he is confounding intravenous with hypodermic injections.

2. Even in intravenous transfusion the fatal effect depends largely upon the quantity of the injected heterogeneous blood. According to Ponfick (Virchow's *Archiv*, vol. lxii, p. 303), dogs died from transfusion of sheep's blood after two hours, if the proportion was 32 grammes of the transfused blood to 1,000 grammes of the weight of the receiving animal; after nine hours the proportion was 20 to 1,000; after fifteen hours, 14 to 1,000; if 10 to 1,000 was taken, no dog died from the effects of transfusion. Now let us assume that the weight of the seventeen-year-old Miss Valentine, of Brooklyn, was about 100 pounds = 50,000 grammes. Ten grammes of the injected antitoxine serum makes only $\frac{1}{5}$ to 1,000! Is there in the entire literature on this subject (by the way not since Landois, 1875, but since Dumas and Prevost, *Annales de chimie*, 1821) a report of a death of an animal or a human being occurring after transfusion of such a minimal quantity of foreign blood, and occurring a few minutes after the injection?

3. Since the introduction of the experimental study and the practical preparation and application of the diphtheria antitoxine, the horse serum has been injected subcutaneously into rabbits and guinea-pigs many thousand times, certainly more often than in all the experiments upon transfusion taken together. As is well known, the rabbit is the most sensitive of all animals to foreign blood; nevertheless, not even once was bloody urine observed after the injection. Is not that proof enough that the globulicidal powers of the horse serum do not come at all into consideration in the subcutaneous injection of the diphtheria antitoxine? The harmlessness of the subcutaneous injections of heterogeneous blood serum is probably due partly to the slow absorption from the subcutaneous tissue, and partly to the fact that the foreign blood, while passing the lymphatics, takes or gives up a quantity of certain salts which, according to H. Buchner (*Centralbl. f. Physiologie*, 1893, No. 7), are essential for the globulicidal power of the alexines.

And now one question. The facts concerning the globulicidal character of the heterogeneous blood serum are stated in many text-books of physiology, and it is expected of every student of medicine to know something about them. Now, is it justifiable to assume, as Dr. Winters and Dr. Armstrong do, that the men who for years made a special study of the blood as a carrier of germicidal properties and acquired immunity will overlook such a factor of elementary knowledge, a knowledge which could be acquired in a few minutes from any text-book? One of the men is P. Ehrlich, a world-wide acknowledged authority on the blood. And it so happens that the first publication of Ehrlich, in 1875, was a study of the effects of the subcutaneous injection of blood! S. J. Meltzer, M. D.

THE ANTITOXINE TREATMENT OF DIPHTHERIA

Owatonna, Minn., *April 15, 1895.*

To the Editor of the New York Medical Journal:

Sir: I have just been reading, in the *Journal* of April 13th, Dr. Winters's criticism of the value of antitoxine serum in diphtheria, and comparing it with a paper read before the Pædiatric Section of the New York Academy of Medicine, November 7, 1894, by A. Campbell White, M. D. Dr. Winters bases his opinion, as given, upon "three months of daily observation in the Willard Parker Hospital." Dr. White also gives an opinion "based upon a series of cases treated at Willard Parker Hospital with antitoxine Schering."

I will only quote slightly from each:

Dr. Winters says: "In fact, a careful study of the individual cases of diphtheria treated with the antitoxine in the Willard Parker Hospital would show that there had been no relation between the antitoxine treatment and the recoveries."

Dr. White says: "The first question—Does antitoxine accomplish any appreciable good results in diphtheria?—judging from our own twenty cases alone, can be answered decidedly in the affirmative."

Any interested person can read the two reports and put in a valuable half-hour wondering how two able observers, working in the same hospital, arrived at such conflicting conclusions. A. B. Stewart, M. D.

THE EFFECT OF FREEZING ON DIPHTHERIA ANTITOXINE

New York, *April 8, 1895*

To the Editor of the New York Medical Journal:

Sir: In the *New York Medical Journal* of April 6th Dr. James J. Mapes, of the Nursery and Child's Hospital, this city, in a letter to the editor warns against the cloudy serum of Behring at present in the market of New York. As some mention is made therein that freezing may have been the cause, we would not fail to acquaint you with the experiments which Dr. Aronson made in the Schering laboratories with his serum. He exposed diphtheria antitoxine (Schering's) to the low temperature of −25° to −30° Celsius (−13° to −22° F.), and found that when the solution became liquid again its efficacy was not in the slightest affected. The liquid became only more opalescent, but no insoluble substances separated and it showed absolutely no sediment after two days' standing. These experiments were made last February, as you will see from the inclosed copy* of a German letter of Dr. Aronson's. Schering & Glatz.

CASTRATION UNDER COCAINE ANÆSTHESIA.

St. Louis, *April 18, 1895.*

To the Editor of the New York Medical Journal:

Sir: On January 17th of this year I performed complete castration for prostatic overgrowth (White's operation) on a man aged seventy-four, after the following manner: The parts having been properly asepticized, the entire scrotal sac was seized by the left hand as high up as possible and manipulated for a sufficient time to relax the dartos and cremasters, after which a tolerably strong rubber band was passed above the hand about the root of the sac, close to the peno-scrotal and perineo-scrotal angles. This band was drawn tight enough to strangulate the scrotal and, probably, the funicular circulations. The line of incision on the anterior surface of each sac was now injected with a four-per-cent. sterilized solution of cocaine, four punctures being made and half a drachm of the solution used for each side. The needle was then inserted, half an inch below the constricting band, into the central part of the cords and five minims of the same solution were thrown in. The scrotal punctures caused some pain, but the injection of the cords produced none. After the lapse of twelve minutes, pinching and puncturing the skin producing no sensation, the usual incisions were made exposing the glands and enough of the cords to answer the purpose, and the organs removed. The cords were ligated *in toto*, anchor loops were placed in the stumps and allowed to fall out of the lower angles of the incisions, and the wound was closed with continuous catgut sutures. The entire operation lasted twenty minutes. The band was now cut and the usual dressing applied.

So complete and satisfactory was the cocaine anæsthesia that the patient was not aware of the steps of the operation, which was done at leisure, but conversed with a friend who was present at my invitation. When the testes were dragged upon for the purpose of ligating the cords above the points of puncture, only a slight sensation was felt, but the application of the ligatures was unnoticed. I think the cords were divided a trifle lower down than I have done when general anæsthesia was employed, though the division could have been made at least an inch higher by the application of a little more force.

Beyond a slight mental exhilaration, no systemic effects of the cocaine were noticed. There was certainly no change in the respiration or the size of the pupil, and there was no flushing or paling of the face. The pulse remained as before the operation.

No published operation for castration done in an entirely similar manner has come under my observation. In fact, the use of the constricting band about the base of the scrotum, employed not as a hæmostatic, but to imprison the cocaine in the scrotal tissues and to prevent its entrance into the general circulation, as has been so commonly done in other operations, notably in circumcision, was new to me; but it is quite possible that a record of such procedure may have been published in the voluminous literature that has followed the discovery and application of this drug, and I shall feel obliged to any one who will give me such reference, if there is any.

The patient, who had been under my care for over five years, had a weak and dilated heart, irregular pulse, more than a trace of albumin in the urine, and a mild cystitis of fourteen months' duration. Hyaline and slightly granular casts appeared in the urine in the fall of 1893. In January, 1894, he came into the hospital with a view of having suprapubic prostatectomy done, but his condition was even then such as to compel me to decline to interfere. The condition of the heart and kidneys seemed to me to contraindicate general anæsthesia by chloroform or ether, and the general feeble condition led me to fear the effects of so severe an operation as prostato-myomectomy, an operation of the first magnitude, if my experience with twenty-eight cases is any guide. In the face of such conditions I hit upon the method described above, not daring to inject so much as three grains of cocaine without previously cutting off the circulation with the elastic band.

That one scrotal sac may be embraced in the elastic ligature, that the didymal tunic may be anæsthetized with a smaller quantity of a weaker (two-per-cent.) solution of cocaine, and that the injection of the cord may be dispensed with, I have demonstrated by a phlebectomy for varicocele done on the 15th of January last. In this instance twenty minims of a two-per-cent. cocaine solution, injected into the upper part of the left scrotal sac, previously strangulated with the elastic band, enabled me to draw the cord through the buttonhole, isolate and ligate the mass of veins, exsect, bring the stumps together, return the cord, and sew up the wound with but a trifling amount of pain.

I may be permitted to call attention here to a possible source of danger in cocaine anæsthesia not usually noticed, one especially liable to occur when blood stasis is produced by a constricting band. The introduction of the cocaine solution under such a condition results in extensive coagulation of the blood, especially in the smaller veins. The two- and four-per-cent. solutions thus cause a true primitive red thrombosis. I have observed this in many cases of circumcision done with cocaine. So far as observed by me, this, often quite extensive, thrombosis does not interfere with the healing of the wounds. So long as these clots are aseptic no harm is likely to ensue; but a fault in the asepsis of the fluid, the syringe, the needle, or the skin over the field of operation might easily infect one or more of the thrombotic clots, which, getting afloat in the blood stream, would be capable of causing mischief at such a distance in time and location as to make it difficult to conneet the consequences with their primary cause. Recent research seems to have demonstrated that cocaine inflicts a certain injury on the leucocytes, causing them to swell, become rigid, and cease to adhere to the vessel walls. May they not, in this condition, be the swift bearers of morbific agents to very distant parts? And may we not have remote effects of cocaine analgesia as well as of chloroform or ether narcosis? The advantage in the case of the cocaine lies in one's power to prevent such results by a most strict attention to asepsis.

In the most recent publication on the subject of cocaine in surgery (*Local Anæsthetics and Cocaine Analgesia*, by T. H. Manley, A. M., M. D.; St. Louis: J. H. Chambers & Co., 1894) that has come to my notice, I find on page 157, under the enumeration of operations to which it may be applicable, the following: "For the treatment of spermatic varices; for the radical cure of hydrocele or all other operations on the scrotum or testes except, perhaps, castration." Nothing, however, is said of the use of the elastic strangulating ligature previous to injection. Surgeons accustomed to operate on prostatics have come to regard the anæsthetic as one of the chief dangers to this class of patients. Chloroform, so pregnant with immediate danger, has, in my observation, a remote danger but little less than that of ether. The possibility of lessening, perhaps even abolishing, this danger in the procedure proposed by White seemed to justify this communication.

J. P. Bryson, M. D.

THE CHARCOT MONUMENT FUND.

819 Madison Avenue, New York, *April 20, 1895.*

To the Editor of the New York Medical Journal:

Sir: The following is a statement of the contributions to the Charcot Monument Fund to date.

Previously acknowledged	$642
Dr. E. B. Fry, St. Louis	5
Dr. J. D. Hirschfelder, San Francisco	10
Dr. E. H. Howard, Rochester	10
Dr. E. B. Potter, Rochester	10
Dr. John O. Roe, Rochester	5
Dr. E. B. Angell, Rochester	10
Dr. George L. Walton, Boston	5
Dr. Shattuck, Boston	20
Dr. George B. Shattuck, Boston	10
Dr. R. D. Edes, Boston	3

Dr. Walter Channing, Boston	$5
Dr. H. B. Howard, Boston	3
Dr. J. B. Ayer, Boston	5
Dr. F. B. Greenough, Boston	12
Dr. J. J. Putnam, Boston	5
Dr. Morton Prince, Boston	25
Dr. H. P. Bowditch, Boston	5
Dr. S. T. Armstrong, New York	5
Dr. H. Knapp, New York	5
Dr. Græme M. Hammond, New York	10
Dr. Frank Hallock, Connecticut	3
Total	$813

Owing to an oversight, the names of the following contributors, through members of the committee, were not given for publication. The names are as follows:

Through Dr. T. Diller, of Pittsburgh: Dr. S. Ayers, Dr. J. W. Dixon, Dr. J. A. Lippincott, Dr. W. H. Daly, Dr. A. Fleming, Dr. F. Lemoyne, Dr. R. M. Tindle, and Dr. J. S. Lange, each, $5; Dr. G. G. Rahauser, Dr. C. C. Hersman, Dr. J. D. Thomas, Dr. D. C. Boyce, Dr. D. N. Rankin, Dr. J. D. Crombie, Dr. D. P. Miller, Dr. W. T. Burleigh, Dr. J. Milton Duff, Dr. W. H. Mercur, Dr. W. T. English, Dr. S. O. Brumbaugh, Dr. J. M. Brockerhoff, Dr. C. H. Voight, Dr. X. D. Werder, and Dr. M. N. Gerhard, each, $1; Dr. T. Diller, $2.

Through Dr. J. W. Putnam, of Buffalo: Dr. Charles S. Jones and Dr. William C. Krauss, each, $5.

Through Dr. James Stewart, of Montreal: Dr. William H. Hingston, Dr. E. P. Lachapelle, and Dr. James Stewart, each, $5; Dr. J. P. Pottot, $4.

The fund will be forwarded to Paris without delay.

Western journals will please copy.

C. A. Herter, M. D., *Secretary*.

Proceedings of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Eighty-ninth Annual Meeting, held in Albany, on Tuesday, Wednesday, and Thursday, February 5, 6, and 7, 1895.

The President, Dr. George Henry Fox, of New York, in the Chair.

(*Continued from page 346.*)

The Tolerance of the Peritonæum.—Dr. H. L. Elsner, of Syracuse, reported the case of a woman who had suffered with a large and troublesome fibroid tumor of the uterus, which had been removed after she had been treated with galvanism and had suffered great losses of blood. The operation was very difficult, and it was thought that under less skillful treatment (the operation had been performed by a New York gynæcologist) it must have resulted fatally. She recovered from the operation in four weeks, and was able to return to her home with a small abdominal sinus remaining. From this sinus a ligature was subsequently discharged, but, after careful examination, a tumor as large as an orange was found in the right iliac fossa. It was supposed to be of inflammatory origin, and gradually disappeared. Soon afterward another tumor, about as large as the first, was evident in the left iliac fossa. The patient suffered greatly with constipation, she gradually became very weak, and finally another abdominal operation was decided upon. Before the day appointed for the operation arrived the patient passed a large quantity of fæces and with it a large pad of gauze. The history was a most remarkable one, said the author; the gauze had been left by oversight in the abdominal cavity at the time the tumor was removed, had become encapsulated, had ulcerated its way into the colon, had been carried through the ascending and transverse colon into the descending colon, had there been arrested, and had finally been discharged with the fæces, the woman tolerating this foreign body in the abdomen for a period of six months.

Extra-uterine Gestation.—Dr. A. B. Breese, of Syracuse, reported three cases. The first case was one with a very clear history of tubal gestation in which portions of the fœtus eventually ulcerated into the rectum and were discharged through the anus. A tumor remained in the abdominal cavity, abdominal section was performed, and the sac containing the remainder of the fœtus was removed. The tumor thus removed was three inches in diameter. This case had been treated by electricity, and showed the possible dangers of that method of treatment.

In the two other cases the diagnosis was not absolutely definite, though the presumption was thought to be in favor of ectopic gestation. In both there was hæmatocele with rupture of the tubes, and in both of them operations were performed which resulted in recovery. There was great shock attending the first of these two operations, transfusion was resorted to, and the patient promptly rallied. The specimen presented principally laminated blood clot.

Dr. C. A. von Ramdohr, of New York, remarked that such cases demonstrated that it was never safe to leave the products of ectopic gestation in the abdominal cavity. Subsequent lithopædia sometimes became dangerous. The extirpation of the sac should not be attempted in the presence of great obstruction to its removal; packing it with gauze and stitching it to the edges of the wound were indicated. If hæmorrhage during the operation was severe it might be checked by throwing a heavy ligature provisionally around that horn of the uterus that was contiguous to the tumor.

The Treatment of Puerperal Septicæmia in Country Practice.—Dr. J. Mann, of Jericho, read a paper in which he said that this disease was fortunately rare in country practice, and was usually due to interference or uncleanliness on the part of the nurse or midwife. The distinction of the disease into sapræmia and septicæmia was too fine for the ordinary practitioner. The principal point was to establish the existence of sepsis and septic influences. It was not safe to depend upon malodorous discharges before determining the diagnosis. Treatment should be prompt and thorough, and should include cleanliness, irrigation, and curettage.

Dr. F. W. Sears, of Syracuse, stated that it was important that both obstetricians and nurses should be trained surgically in view of the complications which were possible in midwifery. The condition of the heart rather than the temperature was the guide of importance in treating this disease. Mild cases would usually end in recovery if the treatment was prompt and thorough. Irrigation, if practiced at all, should be thorough and persistent. It was useless if the septic elements had advanced beyond the uterus. In such cases the curette would be equally useless, and in mild cases it was not especially indicated. If gauze packing was used in the uterus it must be remembered that it might act as a plug, shut in foul secretions, and make matters worse.

Dr. A. F. Currier, of New York, desired to discuss only that portion of the subject which related to the very severe cases—those in which the whole system seemed saturated with poison. The question was as to the propriety of abdominal operations in such cases. These operations, to be thorough, must remove the foci of the disease, and that would usually mean the removal of the uterus. With a patient already enfeebled by the poisonous elements, the addition of the shock of so great an operation, even if it was done with skill and rapidity, must almost certainly be overpowering. Such patients were almost sure to die in any case, and as the result of unpleasant experience in this class of cases he had about concluded that abdominal operations should not be performed upon them. If the inflammation was localized and the purulent material could be readily evacuated without great disturbance of the abdominal viscera, the indication was equally clear to operate, and his experience with such cases had usually been satisfactory.

Dr. F. S. Low, of Pulaski, was opposed to all the methods of interference which had been advocated. Nearly fifty years of experience in country practice had taught him the truth of the maxim "meddlesome midwifery is bad." He believed in giving Nature and natural forces a chance.

Shall Insane Criminals be Put to Death?—Dr. J. B. Ransom, of Dannemora, read a paper with this title in which the question was answered in the negative.

Medical Examiners and Inquests in Cases of Death by Violence.—Dr. S. L. Dawes, of Saugerties, in a paper on this subject, maintained that an autopsy should be made only on those who were supposed to have died from violence, and in the presence of two or more witnesses.

The Curability of Cancer when the Lymph Nodes are Involved.—Dr. B. Farquhar Curtis, of New York, in a paper thus entitled, remarked that it was generally recognized that when the glandular system became extensively involved with malignant disease a complete cure by operative measures was impossible; hence the necessity of early diagnosis and operation. Infection of the glands with some forms of malignant disease—for example, sarcoma of bone—was of late occurrence, while with other forms, especially the carcinomata, it occurred relatively early. In carcinoma of the breast, though Gross had affirmed an average duration of fourteen months before the glands became infected, there were very many cases in which this occurred in a much shorter period, often before the disease had caused the patient sufficient trouble to warrant her in consulting a surgeon in regard to it. The track of the lymphatics from the breast to the axilla being in the pectoral fascia, it was evident that this should be removed in connection with the removal of the breast.

The Surgical Treatment of Empyema of the Antrum.—Dr. S. Lloyd, of New York, read a paper in which he said that this condition might result from disease of the nose or from carious teeth. If the teeth were removed while dental periostitis was present, the diseased condition under consideration might result. Various methods existed of forming a diagnosis of antral empyema; for example, percussion, a stick being held in the mouth against the diseased part, also transillumination by means of an electric light in the mouth. It was important to determine that pus actually flowed from an opening in the antrum, and this was sometimes difficult. Most of the methods of treatment in use were defective. Schmidt's exploratory puncture, a hole being drilled between the two bicuspids, was very useful as a means of diagnosis. It was not always easy to get the pus out, even when its presence had been determined, especially if it was contained in compartments. The principle of draining from the most dependent point should be observed. The disadvantages of making a hole into the antrum through the alveolar process were, that a healthy tooth might be sacrificed in making the hole, the food might make its way through, and, if decomposition or caries was present, it was not easy to remove the offending material through such an opening. Désault's operation, by which a flap as large as a shilling was turned back from the gum, and a hole then chiseled into the antrum, gave plenty of room both for inspection and for removal of diseased and offending material. The objection to it was that infection might be carried to the mouth. The operation and the instruments recommended by Mikulicz were considered the best means of attacking the disease.

Dr. W. C. Phillips, of New York, thought that disease of the antrum was often overlooked, especially when it also involved the frontal and ethmoidal sinuses. Suppurative disease of the antrum was, however, relatively infrequent. He approved of transillumination as a means of diagnosis. Peroxide of hydrogen as an application he did not approve of, as it made a clot within the cavity which was difficult of removal. Spontaneous cure of the disease sometimes resulted; hence surgical operations were not always indicated. Especially was this the case if sound teeth were to be sacrificed. A polypoid condition of the antrum often co existed with empyema, and Myles had devised instruments for its curettage. For drainage the use of tubes was objectionable; gauze was better and was less likely to prolong the infectious process. Cleansing and alterative fluids should be used in the irrigation of the cavity.

The Treatment of Ocular Blennorrhœa in the Newborn was the subject of a paper by Dr. W. F. Mittendorf, of New York, who said that this disease was the cause of more blindness than any other disease. In spite of various preventive measures, the disease had not diminished to any considerable extent. A simple plan of treatment was much to be desired. It should be preventive and curative. Thoroughly antiseptic midwifery was a prerequisite, but outside of hospitals this was not always possible. Crédé's method of treatment was most effective and had saved thousands of eyes. At the Sloane Maternity this method was in use, and in four thousand three hundred deliveries blennorrhœa had never occurred. In three hundred and fifty confinements at Charity Hospital, Blackwell's Island, there had been but one case, and in that one Crédé's method had been omitted. The disease was especially common with the children of primiparæ, and was usually traceable to gonorrhœa in the man. When the disease was actually present, ideal treatment would call for constant attention with two nurses. The eversion of the eyelids, especially the upper one, where the disease was principally situated, was difficult and might be dangerous to the eyes of the attendant as well as to those of the child. The author's suggestion was to combine a drachm of boric acid with nine drachms of vaseline, draw down the lower lid, and with a feather or brush gently smear the lid with the ointment. This would be quickly transferred to the entire conjunctival surface. This should be repeated every five minutes, then every ten minutes, finally every two or three hours, until a cure resulted. In cases in which the secretion was already purulent, when the case was first seen one or two drops of a one-per-cent. solution of nitrate of silver should be instilled into the upper conjunctival sac, and then a stronger solution if necessary. If the cornea resembled a piece of opaque glass the disease was in its worst form and the sight would be lost. If there were only small patches of corneal infiltration, atropine should be employed. If it was too late, and perforation occurred, eserine should be instilled.

(To be concluded.)

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of December 5, 1894.

The President, Dr. C. C. Barrows, in the Chair.

(Concluded from page 379.)

The Treatment of Typhoid Fever with Typhoid Thymus Extract.—Dr. Alexander Lambert read a paper with this title. (See page 524.)

Dr. **John Winters Brannan** said that it was very difficult to estimate the value of any new treatment in a disease of such variable form as typhoid fever. He had himself treated ten cases by this method, and in five of them the results had seemed quite marked. One of these cases had been seen at the Roosevelt Hospital in the service of Dr. William H. Draper. Treatment had been begun early in the disease—as soon as a positive diagnosis had been made. Half a gramme had been given on the first day, the next day one gramme, the third day two grammes, the fourth day four, and the fifth day five. The temperature had not been affected by the injections until the fifth day, when it had fallen quite rapidly and had reached the normal in twenty-four hours, and had remained there. All other symptoms had improved at the same time in the manner described by Dr. Lambert. The patient, who during the treatment had complained bitterly of the soreness caused by the injections, had been full of gratitude for the relief produced by them. Some ten days later a relapse had taken place, and the patient had begged to have the injections repeated. Unfortunately, the supply of thymus solution had been exhausted, and the ordinary treatment, including the use of baths, had been employed. Under this treatment the relapse, as shown by the chart, had lasted twelve days—fully twice as long as the primary attack. As relapses in typhoid fever were usually of shorter duration than the primary attack, the result in this case would seem to speak for the efficacy of the injections. The speaker had given every injection himself—some fifty in number in the ten cases—and had seen no harmful result, either local or general. In two cases, including the one described, temporary soreness had been caused by the larger doses, but nothing more.

It was often difficult in typhoid fever to determine the real stage of the disease. Dr. William H. Thomson, who had succeeded Dr. Draper in the service at the Roosevelt Hospital, had wished to see the treatment tried on a patient in the very beginning of the disease. Such a supposed case had therefore been selected, and the patient had been given an initial injection. On the following day the man, who had been rather a free drinker, had been attacked with delirium tremens, and had died thirty-six hours later. The autopsy had shown lesions indicating that the disease had been really in the third week, instead of in the first week, as had been supposed. This inability on our part to determine the exact stage of the disease was an important source of error in estimating the value of the treatment. In the treatment of diphtheria with antitoxine it had been proved that, unless the antitoxine was used before the fourth day of the disease, there was no result. The same reasoning would seem to indicate that the results of this so-called specific treatment of typhoid fever would depend very much upon the stage of the disease in which the treatment was begun.

In order to observe the effect of the injections, the speaker said he had hitherto omitted all other treatment in his cases. He should now, however, employ baths and other remedial measures at the same time with the thymus solution. Cold baths did not shorten the disease, but they would serve to make the patient more comfortable until the possible abortive action of the injections had been obtained.

Dr. W. P. **Northrup** said that two conclusions had been reached as a result of their observations at the Presbyterian Hospital—viz.: (1) that the injections were harmless, and (2) that, so far as eleven cases meant anything, they were valueless. The experiments had been carried on as scientifically as possible, and other treatment had been suspended during the use of the injections, so as not to confuse the results. In one of the patients whose charts had just been shown the temperature had reached the normal within three days, yet at the same time they had had in the hospital another patient undergoing the usual treatment who had had an equally good temperature chart. Moreover, about this time ten new patients with typhoid fever had been admitted, and, after a careful diagnosis had been made, they had been subjected to the same treatment; yet the temperatures in these cases had not yielded. This new treatment had in no way improved the pulse, but during the treatment the pulse had become decidedly worse, and while it was being tried the delirium had steadily increased. In another case, where there had seemed to be no question about the patient being in the fifth day of the disease, the extract had been given in large doses, but without any effect. There had been one case which might have been pronounced improved by the injections, one had been doubtful, and the remaining ones had seemed to be uninfluenced by the treatment.

Dr. J. P. **Thornley**, house physician of the Presbyterian Hospital, said that the injections had been given deep in the muscles of the gluteal region under antiseptic precautions, and in no case had there been an abscess. The injections had been, however, quite painful, and sometimes there had been some redness following them. Most of the patients had been attacked with quite a severe bronchitis—more severe, apparently, than in the other case which had been subjected to the regular bath treatment.

Dr. **Le Fevre** said that it had seemed to him that the typhoid fevers this last fall had been peculiar in that they had begun with a continuous high temperature and with bronchitis as an early, prominent, and very persistent symptom. On the other hand, the temperature range had not been at all typical, even for such cases as were usually seen in New York city. He did not see that the lower points of these temperature charts had indicated any lower grade of fever.

Dr. W. N. **Hubbard** said that twenty-six cases had been reported with two deaths, which would seem to him to be about the average mortality in New York city at this time. The typhoid-thymus extract, which Dr. Lambert had thoroughly tried, did not seem to have given very encouraging results when compared with the cold-bath treatment. Brandt had treated two thousand cases, seen before the fifth day, without a single death. The mortality in this city was usually over ten per cent. He was glad to note that the cold-bath treatment was being so generally used in the hospitals, and with such good effect. He had found it exceedingly beneficial to give as an antiseptic the sulphocarbolate of zinc in doses of three grains.

Dr. **Le Fevre** said that there had been much discussion concerning the cold-bath treatment, particularly as regarded peritonitis. He would like to ask for an expression of opinion on this point from those who had employed the cold-bath treatment extensively. Should the baths be given when there was decided evidence of peritonitis?

Dr. **Thornley** said that in the Presbyterian Hospital it had been the practice to give baths in almost every case of typhoid fever, beginning them with a temperature of 75° F., and repeating the baths every four hours if the temperature was above 102·5°. He could not recall a single case in which the baths had been omitted because of the condition of the patient except in cases of hæmorrhage. He could not recall any case of peritonitis occurring there except from perforation. When hæmorrhage had occurred, it had been customary to omit the baths and give opium for a time, and then to resume them as before.

Dr. **Northrup** said he would like to ask what symptom had especially predominated in the cases of typhoid fever this autumn. He also had noticed that bronchitis had been very marked, and that the eruption had been unusually prominent, whereas the splenic enlargement had not been so great as usual.

Dr. Le Fevre said this had been exactly his experience.

Dr. Lambert said that the idea of the originators of this treatment had been that the bacillus was acted upon so as to produce a modified poison, and so either bring about tolerance, or in some way an active immunity. He knew of no observations as to whether or not the typhoid germ was actually changed, but the tetanus germs he knew became modified in that they did not form spores when grown in thymus bouillon. These injections might protect the organism before the typhoid poison had had time to thoroughly depress and poison the general nervous system. This would seem to be true from recent observations in experimental typhoid-fever cases. In cases where patients had been uncomfortable, sponge baths had not been omitted, although the tub baths had been stopped. Whisky had also been given when it had seemed to be demanded. He felt that in Dr. Northrup's cases the dose of the extract had not been sufficiently great; it should have been increased to at least six or seven cubic centimetres. He had carried out the treatment with a view to determining whether or not the allegations which had been made for it by foreign observers could be substantiated. Some of the cases had certainly been absolutely unimproved by the injections, but in others it had really seemed to him that there had been a distinct improvement which had been fairly attributable to the treatment. In a number of cases the temperature had been of a distinctly lower grade after the third injection, and the general condition of these patients had been improved. In none of the patients so benefited had there been present the classical picture of the third week of typhoid fever. He hoped that it would be possible for him in the future to bring out some antitoxine treatment which would give still more satisfactory results.

Book Notices.

Suggestions to Hospital and Asylum Visitors. By John S. Billings, M. D., Director of the Hospital of the University of Pennsylvania, and Henry M. Hurd, M. D., Superintendent of the Johns Hopkins Hospital. With an Introduction by S. Weir Mitchell, M. D. Philadelphia: J. B. Lippincott Company, 1895. Pp. 48. [Price, 50 cents.]

Dr. Mitchell in his introduction to this volume states that it is intended to assist untrained observers who, as members of hospital boards, are presumed to study results into which enter questions of cooking, dietetics, ventilation, medical and surgical cleanliness, and analogous subjects, but who are without experience in regard to what is well and what is ill done. To insure the widest criticism, this manual, while in manuscript, was submitted to Dr. J. M. Da Costa and Dr. J. William White, of Philadelphia, and Dr. Hurd, of Baltimore, was induced to associate himself with Dr. Billings in the preparation of a work upon which, as Dr. Mitchell says, an amount of care and thought has been bestowed that is out of proportion to the size of the volume. The book was prepared at the suggestion of Dr. Mitchell, who confidently commends it to all who are managers or trustees of hospitals or are in any way connected with hospital work, and who are not contented to assume an official name and remain ignorant of how honestly to fulfill the duties that should go with it.

A careful perusal of the book shows how carefully the author and his associates have performed their work. The directions are comprehensive and arranged according to the different bureaus of the institution. A very good form to be used by visitors while on inspection duty is appended.

The little volume deserves careful perusal by everybody associated with hospital administration, and the application of its instructions must prove beneficial to such institutions.

Myxœdema, Cretinism, and the Goîtres, with some of their Relations. By Edward T. Blake, M. D., M. R. C. S., Life Associate, Sanitary Institute, Great Britain, etc. Bristol: John Wright & Co., 1894. Pp. xi-13 to 89. [Price, 3*s.* 6*d.*]

The author states that the burden of his book is the septic or infective nature of disease. He considers Graves's disease in women as "an autotoxis," most frequently caused by the absorption of purulent products, while in men the same products lead to the production of rheumatism. If these products abolish the functions of the thyreoid gland, myxœdema results; if they invade the cerebral cortex in large quantity and abruptly, insanity, such as mania, or a nervous disease, such as epilepsy, is the consequence. If the invasion is more gradual and the poisons are more diluted, chorea is the result.

These hypotheses, which the author advances as a provisional pathology, are not supported by any evidence he adduces, and the book, while containing some disconnected facts regarding the diseases mentioned in its title, can not be regarded as a fair exposition of our knowledge of those diseases.

The Insanity of Overexertion of the Brain; being the Morrison Lectures delivered before the Royal College of Physicians of Edinburgh, Session 1894. By J. Batty Tuke, M. D., F. R. C. P. E., F. R. C. S. E. With Illustrations and Diagrams. Edinburgh: Oliver & Boyd, 1894. Pp. viii-66. [Price, 6*s.*]

These five lectures have been published in the *Edinburgh Medical Journal* and are now given to the profession in the form of a volume.

The facts are brought forward that overexertion of the areas of the brain which form the substrata of consciousness produces changes in anatomical and physiological relations shown by trains of physical and mental symptoms; that the primary change is congestive in character; and that secondary changes may be produced, resulting in impairment of the systems of connection, with resultant permanent insanity.

The author wisely states that to approach the treatment of insanity through the portal of psychology is hôpeless. These abnormities must first be attacked through the organ primarily affected, and the great essential is rest for the brain. How this rest is to be secured, the methods of treatment that are to be followed, can not be reviewed here, but we can say that these lectures are a timely and valuable contribution to the literature of insanity.

A Practical Theory and Treatment of Pulmonary Tuberculosis. By Frank S. Parsons, M. D., Philadelphia, Pa. Philadelphia: The Medical Publishing Co., 1895. Pp. 2 to 77.

In this brochure the author maintains that pulmonary tuberculosis is curable at any time before destructive changes have advanced to a point beyond which the organism is incapable of sustaining life. He holds that no two cases of pulmonary tuberculosis should receive identical treatment solely because they are tubercular, and attention is directed to the fact that the *Bacillus tuberculosis* alone is an inefficient causative agent of the disease, for the reason that there must be a pre-existing condition that offers favorable influences for the development of the bacilli, that act only as foreign bodies.

The anatomical and physiological relations of the circulation are reviewed for the purpose of bringing forward the foundation stone of the superstructure, the idea that tuberculosis is a symptom of lymphatic disturbance or stasis.

The author considers that, as in tuberculosis the venous blood is brighter than normal, it is an evidence that some constituent of the red blood-corpuscles is not properly oxidized in the tissues, a fact implying the absence of an oxidizing element. As the blood contains phosphorus in an oxidizable form, and as oxygen has a great chemical affinity for phosphorus, it is not out of reason, the author thinks, to infer that in the condition known as tuberculosis there is a deficiency of oxidizable phosphorus.

An antipathy to fatty food is considered one of the most important symptoms of incipient tuberculosis.

The treatment advised is by irrigation of the stomach with hydrozone, 1 to 16 of water, and a glassufl of a hydrozone solution, 1 to 32, half an hour before meals; and Churchill's or Gardner's syrup of the hypophosphites as chemical foods. The suggestions regarding diet, climate, and exercise are those usually prescribed.

Hygiene with Anatomy and Physiology. Being an Amplification of Edwards's Catechism of Hygiene. By Joseph F. Edwards, A. M., M. D., etc. Intended for Schools and General Reading. New York: Edward P. Slevin, 1895. Pp. ix–435.

This work is popularly written in order to adapt it to schools and general reading. Anatomy and physiology are considered only in their relations with hygiene, which the author defines as a science that gives health and contentment to all who follow its rules. The text is generously illustrated, and the book is well adapted to school use.

BOOKS, ETC., RECEIVED.

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M. D., New York City. In Twenty Volumes. Volume II. Nutritive Disorders. New York: William Wood & Co., 1895. Pp. iv–3 to 739.

Epitomes of Modern Surgical Progress. For Students and Practitioners. By E. Hurry Fenwick, F. R. C. S. Eng., Surgeon to the London Hospital, etc. Illustrated. Bristol: John Wright & Co., 1895. Pp. 219. [Price, 4*s*.].

Atti dell' XI Congresso medico internazionale. Roma, 29 Marzo–5 Aprile, 1894. Volume II. Anatomia, fisiologia, patologia generale e anatomia patologica. Volume III. Pediatria, farmacologia e medicina interna. Roma: Tipografia della camera dei deputati, 1894.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections in Photo-lithochromes from Models in the Museum of the St. Louis Hospital, Paris. With Explanatory Woodcuts and Text. By Ernest Besnier, Physician to the St. Louis Hospital, etc.; A. Fournier, Professor of the Faculty of Medicine, etc.; M. Tenneson, Physician to the St. Louis Hospital; M. Hallopeau, Professeur agrégé of the Faculty of Medicine, etc.; M. Du Castel, Physician to the St. Louis Hospital. With the Co-operation of Henri Feulard, Curator of the Museum, and Léon Jacquet, Secretary of the Dermatological Society of France. Authorized English Translation. Edited by J. J. Pringle, M. B., F. R. C. P., Assistant Physician to and Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Part I. London: F. J. Rebman, 1895. [Price, 10*s*. 6*d*.]

Twenty-fifth Annual Report of the Massachusetts Homœopathic Hospital and of the Ladies' Aid Association for the Year ending December 31, 1894.

Twenty-fifth Annual Report of the Manhattan Eye and Ear Hospital.

Fifteenth Annual Announcement and Catalogue of the Memphis Hospital Medical College.

Sixteenth Annual Report of the Trustees of the Binghamton State Hospital for the Year ending September 30, 1894.

The Early Management of Clubfoot. By De Forest Willard, M. D. [Reprinted from the *Therapeutic Gazette.*]

Nerve-suturing. Neurorrhaphy. Nerve-grafting. By De Forest Willard, M. D., Philadelphia. [Reprinted from the *Medical News.*]

A Modification of Hedin's Hematokrit. By W. F. Arnold, M. D., United States Navy. [Reprinted from the *Medical News.*]

The Prevention and Treatment of Ophthalmia Neonatorum, and the Necessity for more Efficient Legislation to Prevent Blindness from this Cause. By Charles H. May, M. D. [Reprinted from the *Medical Record.*]

The Ætiology, Pathology, and Treatment of Intestinal Fistula and Artificial Anus. By N. Senn, M. D., Chicago. [Reprinted from the *American Journal of Obstetrics.*]

Comparison of Operative Methods in the Treatment of Clubfoot. By De Forest Willard, M. D. [Reprinted from the *Transactions of the American Orthopædic Association.*]

Treatment of Paralytic Deformities. By De Forest Willard, M. D. [Reprinted from the *Transactions of the American Orthopædic Association.*]

Nerve-suturing (Neurorrhaphy). Degeneration and Regeneration following Section. Microscopical Appearances. By De Forest Willard, M. D. [Reprinted from the *International Medical Magazine.*]

Laryngo-tracheotomy for Foreign Body. A Clinical Lecture presenting Two Cases. Successful Operations. By W. B. Rogers, M. D. [Reprinted from the *Memphis Medical Monthly.*]

The Surgical Treatment of Hernia. By Henry O. Marcy, M. D., Boston. [Reprinted from the *Transactions of the New York State Medical Association.*]

Sensible Temperatures. By Mark W. Harrington, Chief of the United States Weather Bureau. (Read before the American Climatological Association, Washington, D. C., May, 1894.)

Operative Treatment of Knee-joint Disease. By De Forest Willard, M. D. [Reprinted from the *University Medical Magazine.*]

The Surgical Treatment of Spina Bifida. By Henry O. Marcy, M. D. [Reprinted from the *Annals of Surgery.*]

New Inventions, etc.

A COLOR-CARRIER FOR EXAMINATIONS OF THE VISUAL FIELDS.

By Hugh T. Patrick, M. D.,

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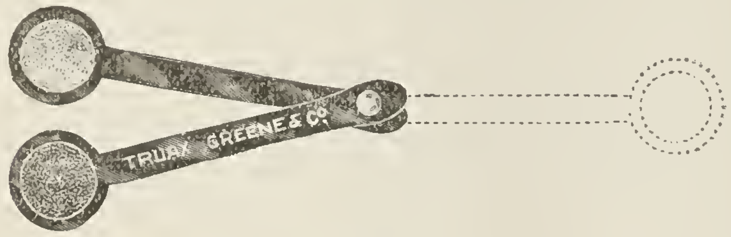
The accompanying cut represents what I have almost ventured to call a pocket perimeter, simply because it may frequently take the place of one. It is, in fact, only a color-carrier, the eye of the observer being the perimeter. The perimeters of Schweiger and Dana should, I think, be called "portable" rather than "pocket," as they are far too bulky to be habitually carried in the pocket. My own little device, which has been in constant use for about two years and a half, is made of two slender pieces of hard rubber, two inches in length, joined together at one end by a rivet, the other being expanded into a disc half an inch in diameter. The discs are countersunk on both sides, leaving only a narrow rim at the edge, and into these depressions are cemented pieces of colored felt such as are used



with a perimeter. When the blades are fully opened we have a black rod, nearly four inches over all, carrying on one end white and blue, and on the other red and green. By sitting facing the patient and bringing the carrier in from the periphery, imitating the curve of a perimeter, the fields for white, blue, red, and green may be very rapidly estimated. It takes but little practice to learn the normal fields. For record a perimeter is essential, but for bedside, dispensary, and rapid work anywhere this simple device will be found extremely useful, and, I venture to think, make perimetric examinations more frequent. The folded instrument may be carried in a small pouch such as is used for pocket knives, and it takes up no more room in the waistcoat pocket than a folded dollar bill. It may be obtained of Truax, Greene, & Co., of Chicago. The rims around the discs as depicted in the cut are wider than they should be.

Venetian Building.

Miscellany.

The Physiological Action of the Extract of the Suprarenal Capsules.—The *Journal of Physiology* for April publishes three papers on this general subject. The first, by Dr. G. Oliver and Mr. E. A. Schäfer, was read at a recent meeting of the Physiological Society, of London. In this communication the authors referred to some earlier experiments showing that when an extract, whether prepared with water, alcohol, or glycerin, of the suprarenal bodies of the calf, sheep, or dog was injected—even in very small quantities—into a vein in a dog or a rabbit the following pronounced physiological effects were produced in a few seconds: 1. Extreme contraction of the arteries, which was shown to be of peripheral origin. 2. A remarkable and rapid rise of the arterial blood-pressure, which took place in spite of powerful cardiac inhibition, and became further augmented when the vagi were cut. 3. Central vagus stimulation, so pronounced that the auricles came to a complete standstill for a time, although the ventricles continued to contract, but with a slow, independent rhythm. 4. Great acceleration and augmentation of the contraction of the auricles and ventricles after section of the vagi—the auricular augmentation being especially marked. 5. Respiration only slightly affected, becoming shallower.

A large number of observations made on dogs, cats, and rabbits since last March have confirmed these results, and enabled the authors to determine others. As in their earlier experiments, watery decoctions of the glands were chiefly employed by them. The suprarenals experimented with were derived from the calf, the sheep, the dog, the cat, the guinea-pig, and man. The physiological results were exactly the same whatever the source of the glands, except in two which were taken from subjects of Addison's disease. The following effects are given by the authors: 1. As a rule, when the intravenous mode of administration was adopted, a definite small quantity of the extract representing a known weight of the fresh gland was injected. In exceptional instances, however, a continuous flow of a five-per-cent. solution of the extract was employed. In these instances the physiological effects were maintained during the entire time the injection lasted, but without the development of other apparent symptoms and without causing death. In this way large doses of the extract were administered to the dog, thereby producing the most violent cardiovascular disturbance without causing a fatal result. 2. In a former communication the inference as to the extreme contraction of the arteries from observations on the blood-pressure, from the use of the limb plethysmograph, and from the arrest of the flow of normal saline through the vessels of a frog caused by the addition of a small quantity of suprarenal extract. Several observations with the oncometer have confirmed this conclusion and have shown that it may be extended to the vessels of the kidneys; for the tracings have shown a well-pronounced reduction in volume of that organ during the suprarenal effect on the circulation. 3. It has been observed that stimulation of the depressor nerve does not produce the usual reduction of the blood-pressure while the effects of the suprarenal injection last; that is, if the depressor nerve in the rabbit is stimulated at the height of the pressure caused by intravenous injection of suprarenal, the usual fall of blood-pressure is not produced, and no depressor result is to be obtained until the blood-pressure has returned to the normal or nearly so. The depressor result reappears simultaneously with the Traube-Hering curves, if these are seen at all in the tracing. 4. It has invariably been found that the heart's action is remarkably accelerated and augmented in the dog, the cat, and the rabbit after section of the vagi. In view of this powerful stimulation of the heart in mammals, it was rather surprising to find a comparatively small effect produced by the extract on the frog's ventricle. It was not found that solutions of less than one per cent. of suprarenal extract in Ringer's circulating fluid would affect the frog's ventricle with certainty, recording its pulsations in a heart-plethysmograph. The following results, however, were obtained with this and with stronger solutions—up to five per cent.: Reduction of diastole, with consequent acceleration. 2. The abolition of groups of contractions and the setting up of continuous pulsation. 3. The arrest of the ventricle in systole. As this extreme effect of the extract was not prevented or antagonized by potassium chloride, the conclusion was that it was due to calcium salts in the extract; for Ringer has shown that the calcium effect upon the contraction of the frog's ventricle is counteracted by potassium. Moreover, the individual contractions do not show the characteristic calcium effect. On the contrary, each individual contraction remains normal, although the acceleration produced by the drug may ultimately be sufficient to prevent the completion of the diastole, and the contractions may thereby be caused to run together. 5. The paralyzing effect of the subcutaneous injection of the extract—about one or two grains—in the frog has not been observed in other animals experimented on in this way, except from lethal doses in the rabbit. It has been observed, however, in dogs subjected to intravenous injections of the extract, that when the muscles were electrically stimulated through the nerve supplying them, a modification of the normal contraction was apparent, the relaxation being delayed, as in the case of frog's muscle. This effect, moreover, not only was observed while the suprarenal rise of the blood-pressure was being recorded, but was traceable for some time after that rise had passed away. It was therefore inferred that the active material was probably taken up by and remained for a time stored within the muscular tissues. 6. No definite effect was obtained upon the secretion of the submaxillary gland as the result of injecting suprarenal extract into the blood. The chorda tympani was not found to be any less active in promoting the secretion of the gland in an animal the blood-vessels of which were contracted by the extract. 7. It was found that when two extracts were prepared of equal strength—1 to 100 of normal saline—one of the cortex and the other of the medulla of the perfectly fresh gland, the intravenous injection of the former would not produce the characteristic cardio-vascular disturbance, while that of the latter in the same dose would induce it in a marked degree. It is, however, the authors say, somewhat difficult to prepare the cortical extract perfectly free from a trace of the medulla, so that it may happen that a comparatively large dose of cortical extract may produce a slight physiological effect; but not more than that of a much smaller portion of the medullary extract. The conclusion, therefore, is that the active principle of the extract is present in the medulla only, the effects obtained from the extract of cortex being small and inconstant and probably to be explained by accidental contamination or post-mortem diffusion. 8. Experiments were made with suprarenals from three subjects—one in which the glands were healthy, and two others in which they were diseased (cases of Addison's disease). The healthy organs provided an extract of great physiological activity, whereas the diseased adrenals afforded one which gave a purely negative result. 9. In view of the oral administration of the extract as a remedy, it seemed desirable to ascertain whether peptic digestion impaired its active properties. A little of the watery extract of the gland was added to artificial gastric juice (pepsin + 0·2 per cent. of hydrochloric acid) and exposed to a temperature of 104° F. for twenty-four hours. The intravenous injection of a small quantity of this and of an equal portion of the same extract diluted at the time to the same extent with 0·2 per cent. of hydrochloric acid produced identical physiological effects. The injection of an equivalent amount of acid as a check experiment produced no effect. The authors, therefore, do not think it likely that stomachic digestion will seriously lessen the physiological properties of the extract. 10. Experiments were made with the view of ascertaining how the extract was eliminated or disposed of, and whether the active principle was destroyed in the blood. This seemed not improbable, as it was found that alkalies and oxidation destroyed the activity of the extract. It was observed, however, that when allowed to stand in freshly drawn blood with free exposure to the air, or with complete exclusion of air for twenty-two hours, the extract possessed the same activity as when preserved in exactly the same manner in normal saline. It was also ascertained that clamping the renal vessels or the suprarenals themselves did not prolong or perceptibly modify the duration of the effect produced on the blood-pressure by the intravenous injection of the extract. As an altered contraction of the muscles was observed to persist after the subsidence of the cardio-vascular disturbance set up by the injection, it seemed probable that the active principle of the extract passed out of the blood into the muscles, and remained there for a time.

The authors have shown that in Addison's disease the adrenals may become totally devoid of the physiologically active material. If these bodies are to be regarded as eliminators of toxic materials rather than as producers of materials which are of definite physiological value, the toxic materials they should remove or destroy might be expected, in cases in which their function is in abeyance, to pass out by the kidneys. They have found, however, that an extract prepared from the urine in Addison's disease has precisely the same effect when injected into a vein as that of an extract prepared from normal urine. In fact, all the evidence they have leads them, says Dr. Oliver, to view the function of the suprarenal bodies—at least the medulla—as secretory rather than destructive, and the secreted product as being in all probability of great physiological importance for maintaining the tonicity of the muscular tissues in general, and especially of the heart and arteries.

The second article is by Dr. Moore, of the University College, London, On the Chemical Nature of a Physiologically Active Substance occurring in the Suprarenal Gland. He gives the following account of some experiments:

The first experiments were made with a glycerin extract of which one part was equivalent to one of the fresh glands. A portion of this extract was treated with ten times its volume of absolute alcohol, filtered from the resulting precipitate, and evaporated to a syrup at a temperature of 158° F. This residue was dissolved in normal saline, tested physiologically by venous injection, and found to be very active. The precipitate caused by the alcohol was also extracted with normal saline and the extract injected and found to be inactive. Boiling the original extract, or a solution prepared by treating it with alcohol as described above, did not destroy any of its active properties; also on subjecting it to the action of acids or alkalies for a few minutes, then neutralizing and injecting, the extract was found to be still active. But it was shown by subsequent experiments that boiling for three or four hours with water alone, or heating to 104° with even very dilute alkalies for a similar period, completely destroys the physiological activity of the substance, while heating to 104° for a like time with different acids, varying in strength up to ten per cent., left it quite untouched.

A water extract of the gland was prepared by mincing the glands, covering with water for a few hours, boiling for a few minutes, and then filtering. This filtrate was evaporated to dryness at a temperature of 158° and a brown-colored residue obtained, of a sticky, waxlike consistence when warm, becoming brittle on cooling, and very deliquescent. This residue was found to be very active. It was extracted with various organic solvents—viz., ether, chloroform, carbon bisulphide, amyl alcohol, benzene, and ligroin, as well as with mixtures of these solvents, but the active principle was not dissolved by any of them. Repeated extraction with boiling absolute alcohol gave a brown-colored wax similar to the original residue; even in hot absolute alcohol this wax, which it is impossible to dry completely, is very feebly soluble, and in a later experiment it was shown that the fresh glands dried at 104° and then, after several extractions with anhydrous ether, placed under absolute alcohol, had a mere trace of the active principle extracted from them even after several days' standing. The water extract, boiled and filtered, was saturated with ammonium sulphate, which caused a scanty precipitate; the filtrate from this, diluted with its own volume of water, gave a strong effect, a check experiment showing that an equal amount of half-saturated ammonium-sulphate solution had no such action. The precipitate caused by saturation was extracted, injected, and found to be inactive.

The water extract was distilled in a vacuum at a temperature between 122° and 140°, and the distillate was found to be inactive. The brown residue remaining was also distilled *in vacuo* and the portion coming over below 212° and that between 212° and 356° collected separately and tested, as well as an extract of the charred residue—all three were found inactive. The brown residue which softens and becomes semifluid between 140° and 176° chars rapidly when heated above 302°.

Some fresh glands were dried at 104°, then, after several extractions with ether, and after standing for some weeks under absolute alcohol, were extracted with a small quantity of distilled water, and the filtrate allowed to dialyze into distilled water through parchment paper. The dialyzate was strongly active.

This dialyzate contains some substance possessed of a powerful reducing action. Such a substance has already been described as occurring in the gland by Vulpian, and his observations have been confirmed and extended by Virchow, Arnold, and Krukenberg.

The solubilities of the active principle, says Mr. Moore, are exactly the same as those of this reducing agent. Experiments in which portions of the cortex and of the medulla were carefully separated and made into extracts, demonstrated that the active principle was also confined to the medulla. Heating with dilute alkalies destroyed the active substance, and it also oxidized the reducing agent. Oxidation of an active extract for a few minutes with peroxide of hydrogen developed a rose-red coloration and at the same time very materially weakened the physiological effects of the extract. These considerations, says the author, point to the fact that the active principle and the body giving these peculiar reactions are probably identical; and in all cases where extracts possessing active physiological properties were afterward tested chemically for this reducing agent, it was invariably found to be present, while in those cases in which no physiological effect was obtained the reducing agent was found absent by chemical tests.

The action of various precipitants was tried on the dialyzed extract. Platinic chloride gave no precipitate. A small precipitate was obtained by the use of this reagent in an alcoholic extract, but, on decomposing it with sulphureted hydrogen, filtering, neutralizing, and injecting, no effect was obtained, and the original filtrate from the platinic chloride, after removing the excess of that reagent, gave a strong effect. A similar result also, says Mr. Moore, was obtained with mercuric chloride. Potassio-mercuric iodide gave no precipitate. On adding phosphomolybdic acid, the solution turned green and a blue precipitate fell, both, he says, evidently due to the reduction of the reagent. Nitrate of silver gave a white precipitate which rapidly turned black from reduction, even when kept in the dark, and, on heating, a silver mirror was rapidly obtained. The various extracts, says the author, were found not to reduce Fehling's solution even after boiling with mineral acids, and yielded no crystalline product when heated with phenyl hydrazine.

On passing a solution of the brownish resin obtained by evaporating the water extract to dryness through animal charcoal, to decolorize it and obtain a purer product, a colorless filtrate was obtained, yielding on evaporation fern-shaped masses of crystals, but on testing a solution of these no physiological effects were obtained, and the active principle could not be re-obtained from the charcoal by boiling with water. On trying the effect of smaller quantities of charcoal it was found that the solution, instead of being decolorized, became more deeply colored. Probably, says the author, the active principle is first oxidized by the charcoal and afterward decolorized.

The results obtained up to the present time are briefly stated as follows:

The active principle is soluble in water and in dilute alcohol; its solubility decreases with the percentage of alcohol present until with absolute alcohol it is almost insoluble. It is insoluble in ether, chloroform, amyl alcohol, carbon bisulphide, benzene, or ligroin.

It is not attacked by acids nor by boiling for some minutes, but is destroyed by alkalies, by oxidizing agents, and by continued boiling.

It is not precipitated by excess of alcohol, by saturation with ammonium sulphate, by mercuric chloride, potassio-mercuric iodide, or tannic acid.

It does not reduce Fehling's solution alone or after boiling with mineral acids, and it does not form a crystalline compound with phenyl hydrazine.

It is not volatile, either alone or with water vapor. It dialyzes freely through parchment paper, and the highly active dialyzate so obtained is completely free from proteids.

With regard to the proteids of the suprarenal capsules, Mr. D. N. Nabarro, also in the same journal, remarks that an investigation was started with the view of ascertaining the nature of the proteids derived from the suprarenal bodies. The materials employed for examination, he says, were the suprarenals of calves. They were extracted with a five-per-cent solution of manganese sulphate within twelve hours after death. The proteids obtained were, for the most part, of the nature of globulins and nucleo-albumins; in other words, they were, with one exception, precipitated by saturation with manganese sulphate. The temperatures of heat coagulation were 132·4°, 149°, and 167° F. One albumin was present in small amount, coagulating at 159·2° F. The proteid coagulating at 132·4° was a globulin. It left no trace of a residue on digestion with artificial gastric juice. That coagulating at 149° left a very small residue on digestion; and the proteid coagulating at 167° also left a very small residue.

The extract of the glands made with five per cent. of manganese sulphate gave on acidifying slightly with acetic acid a considerable coagulum at from 104° to 105·4° F. On repeating the experiment with a second extract, the precipitation began at a still lower temperature, at about 95°. On careful neutralization of the same extract, and on warming, a thick precipitate occurred at 104°. Whether this was a precipitation of a globulin or of a nucleo-albumin Mr. Nabarro says he is not at present able to assert definitely, but that it was probably of the nature of nucleo-albumin, he says, would appear from the fact that a considerable residue was left upon gastric digestion. No pepsin or peptone was present in these glands.

The Third International Congress of Dermatology will be held in London on August 4, 5, 6, 7, and 8, 1896, under the presidency of Mr. Jonathan Hutchinson. Dr. George T. Jackson, of New York, the secretary for the United States, has sent us the following regulations for publication:

1. All duly qualified medical men, British or foreign, or others interested in science invited by the council, who shall have paid the fee of £1 sterling, and who shall have enrolled themselves, shall be members of the congress and entitled to the volume of *Transactions*.

2. The official languages of the congress shall be English, French, and German, but with the permission of the president, members may express themselves in the language with which they are most familiar.

3. The proceedings of the congress shall be embodied in a volume of *Transactions*, edited by the executive council.

4. Communications relative to membership, papers, or other matters connected with the congress should be addressed to the secretary-general, Dr. J. J. Pringle, 23 Lower Seymour Street, London, W., or to one of the foreign secretaries.

5. The fee for membership shall be payable in London, at or before the opening of the congress.

It will greatly facilitate the work of the executive council if the fee is forwarded as soon as possible after the 1st of May, 1896, to the treasurer, Mr. Malcolm Morris.

6. Members who are unable to attend the congress shall receive the volume of *Transactions*.

7. The subjects treated of shall be of two orders:

(1) Those selected beforehand by the executive council and

introduced by gentlemen chosen for that purpose by the council.

(2) Those selected by individual members themselves.

8. Subjects selected for debate by the council shall take precedence over those selected by the members.

9. The sittings of the congress shall take place from eleven to one in the forenoon and from three to five in the afternoon of each day.

10. There shall be clinical demonstrations of patients every morning from nine to half-past ten, and every afternoon from two to three.

11. Members contributing papers must submit an abstract of them to the secretary-general on or before the 1st of May, 1896, which will be printed either in full or in part, and embodied in the general programme of the congress which will be distributed at its opening.

12. At every debate precedence will be given to gentlemen who have communicated beforehand their intention to take part in it.

13. No papers lasting more than twenty minutes will be permitted. Speeches will be strictly limited to ten minutes each. Manuscripts of the papers read must be left with the secretary-general before the end of the sitting. The executive council shall decide as to the entire or partial publication of such papers in the *Transactions* of the congress.

Astigmatism or Astigmia?—In a letter from its Paris correspondent the *Lancet* prints the following: "In the current number of the *Annales d'oculistique* Dr. Georges Martin, of Bordeaux, publishes a suggestive article on the correct nomenclature of the above condition. He reminds us that Dr. Whewell, when he invented the word astigmatism, meant to describe a condition in which rays emitted by a luminous *point* and traversing an eye of which the cornea or the lens are refracted less in the vertical axis than in the other axis, and could not consequently be brought to a focus or *point* on the retina. But Dr. Martin contends that Whewell should have chosen for his purpose, not *στίγμα, στίγματος* (which really means *puncture*), but *στιγμή, στιγμῆς*, which signifies a mathematical *point.* He points out that the word stigmata is commonly employed to describe the wounds made in our Saviour's feet and hands by the nails of the cross. Before, however, bringing the new word *astigmie* to the notice of the profession, Dr. Martin consulted two competent Hellenists—M. Ouvré, professor of the faculty of letters of Bordeaux, and M. Monnier, law professor at the same faculty and a well-known Greek scholar. Dr. Martin adduces, as a further reason for the adoption of the new term *astigmie* (astigmia), the fact that the innovation would justify the use of the current word *astigmometer*, which should logically be written *astigmatometer* under the old nomenclature. My friend Dr. Bull, of Paris, to whom I am indebted for this information, tells me that Dr. Martin's view has met with such acceptance that he himself (Dr. Bull) and Dr. Javal and Dr. Parent intend to employ the word *astigmia* to the exclusion of Whewell's term *astigmatism*, and that the official sanction of the next ophthalmological congress will be sought for the innovation."

The Illinois License to Practice.—We have received the following from Dr. Marie J. Mergler, the secretary of the faculty of the Northwestern University Woman's Medical School:

At a meeting of the faculty of the Northwestern University Woman's Medical School the following resolutions were unanimously adopted and ordered to be placed before the Illinois State Board of Health:

Whereas, On three occasions within the past three years the Illinois State Board of Health has licensed to practice medicine in this State students who have not properly qualified themselves for such duties, and whose incompetence has compelled us to withhold the degree of doctor of medicine, and

Whereas, By common report we are informed that the State board has adopted a similar policy with reference to numerous other persons, therefore,

Resolved, By the faculty of the Northwestern University Woman's Medical School, that the State board be requested hereafter to make its examinations so rigid that persons incompetent to obtain the degree of doctor of medicine from first-class medical colleges can not obtain a license to practice from the Illinois State Board of Health.

Resolved, That the State Board of Health be urged to do all in its power to secure a modification of the State law so that the privilege of examinations for license to practice in this State can only be obtained by graduates of recognized medical schools in good standing.

Resolved, That for the protection of the lives and health of our people we believe it the duty of the State Board of Health to do all in its power to prevent the entrance into the medical profession in this State of any persons not properly qualified, and,

Resolved further, That in the interests of humanity and medical science we believe the State board should make its standard of qualifications as high as that of the best medical colleges in this country, and that it should do all in its power to aid and encourage the efforts of the profession and the people for thorough medical education and higher requirements of licentiates and for the degree of doctor of medicine.

The Nu Sigma Nu Fraternity will hold its thirteenth biennial convention on June 3d, 4th, and 5th in Minneapolis, with its University of Minnesota brethren. The association has twelve chapters connected with different medical universities and a membership which includes more than a thousand prominent physicians. It originated at the University of Michigan, the parent chapter being at present at Ann Arbor. The object of the fraternity is the intellectual and moral advancement of medical practitioners and the elevation of the standard of the medical profession. The last convention was held during the progress of the World's Fair at Chicago, when the following grand officers were elected: President, Dr. John L. Irwin, of Detroit; vice-president, Dr. James T. Christison, of St. Paul; secretary, Dr. Thad. H. Walker, of Walkerville, Canada; treasurer, Dr. F. Gurney Stubbs, of Chicago; historian, Dr. Ransam J. Parker, of New York; guard, Dr. John H. Macready, of Cincinnati; Dr. W. J. Lyster, of Harper Hospital, Detroit, is acting as secretary in the absence of Dr. Walker, who is now in Europe.

Enemata in the Treatment of Diarrhœa.—In an editorial article the *Therapeutic Gazette* says: "We believe that large rectal injections, or injections of sufficient size to wash out the sigmoid flexure and colon, are not sufficiently resorted to, particularly in those cases of diarrhœa in which a catarrhal element is well marked. In these catarrhal cases it will generally be found that mixed with the watery portion of the discharge there is more or less mucus in strings or flakes, which indicates, as a rule, that a certain amount of the trouble, at least, is situated in the colon. While the rule is by no means an absolute one, the presence of large quantities of mucus indicates very strongly that the whole trouble is in the larger bowel. It is evident, therefore, that the use of drugs by the mouth is a very indirect way of influencing the diseased area, since the medicament must pass through the œsophagus, the stomach, the duodenum, and the small intestine before it arrives at the point where its thereapeutic efficacy is to be developed. On the other hand, good results are attained if large clysters are given by means of a hydrostatic syringe elevated not more than eighteen inches or two feet above the rectum. Such treatment will frequently control the movements, limiting them to one or two in twenty-four hours, even if the fluid character of the stool remains unchanged. Various substances have been employed dissolved in the water to be injected. Some of them have not only a powerful local action, but, in addition, are capable on absorption of producing widespread influences throughout the body. Among these may be mentioned salicylic acid and its relatives, nitrate of silver, iodoform when given in oil emulsion, and some of the vegetable astringents. The substance which has always given us the best results under these circumstances is the sulphocarbolate of zinc in the proportion of ten to thirty grains to an injection amounting to from two to three quarts. In some instances the water should be tepid, in others it should be as hot as the bowel can stand, and in still others it should be quite cold, the temperature of the injection depending largely upon the acuteness of the inflammatory process and the sensations of the patient, for in the same way that an application of cold water is grateful to a sprained ankle of one individual, while another prefers hot water, so does one patient get comfort from cold injections and another from heated ones. If the water be cold, care should be taken that undue chilling of the body does not result in feeble persons, or if hot, on the other hand, that a mild degree of heat fever is not produced. The success of this treatment depends absolutely, in many instances, upon the gentleness and care with which the injection is given, and the water must be allowed to trickle into the bowel rather than to enter it with any force, for the three reasons, that (1) if force is used, the bowel immediately resists the injection and perhaps forces it out. (2) It becomes so irritable that further injections are impossible. (3) This condition of rectal irritability reflexly causes irritability of the entire intestinal tract in much the same way that rectal ulcer may cause diarrhœa, and as a consequence, the patient is worse than before the method was attempted. In those cases of chronic diarrhœa in which the patient is markedly emaciated and unable to digest much food, so that the condition of impaired nutrition is an important factor in preventing recovery, this method of treatment is to be highly recommended, and it is worthy of note that a small rectal injection, amounting to an ounce or two of iodoform and sweet-oil emulsion, in the proportion of five grains to the ounce, injected into the bowel after a large watery movement has passed away, will relieve any tendency to tenesmus and, by the absorption of a small amount of iodine, exercise a useful influence over the catarrhal process which underlies the symptom which we are treating."

The Distribution of Assimilated Iron Compounds, other than Hæmoglobin and Hæmatins, in Animal and Vegetable Cells.—No. 343 of the *Proceedings of the Royal Society* contains an abstract of a communication by Mr. Macallum, of the University of Toronto, who remarks that he has endeavored to determine with perfected methods the distribution of assimilated iron compounds in cells of all classes.

The methods adopted, says the author, were such as prevented a confusion of the iron of inorganic and albuminate combinations with that of assimilated compounds. The reagent which proved to be of the greatest service was freshly prepared ammonium hydrogen sulphide made from a solution of ammonia of 0·96 specific gravity, and applied, mixed with glycerin, to the isolated cells. Sulphuric, hydrochloric, and nitric acids, dissolved in certain proportions in alcohol of ninety-five per cent. strength, were found to liberate the iron of assimilated compounds, but the results obtained with these acids were, in all cases where this was possible, checked by experiments with the sulphide reagent. The iron liberated was readily demonstrated in the form of ferrous sulphide or of the Prussian-blue compound.

The fact that the iron of coagulated hæmoglobin is unaffected, he says, by ammonium hydrogen sulphide enables us to overcome the difficulties presented by the presence of that coloring matter in many animal forms. The iron of hæmatin is, however, liberated by that reagent, but the rapidity with which this is done, under the most ordinary conditions, may be employed to distinguish the iron so derived from that of other organic compounds. Whether chlorophyll contains iron as a constituent of its molecule is still a matter of dispute, he says, but the presence of that coloring matter in vegetable cells does not complicate the results, since in the hardening process, especially when alcohol is used, it may be entirely removed from vegetable tissues, which then, so far as the distribution of "masked" iron is concerned, give no evidence of anything different from what obtains in *Monotropa uniflora* and in *Corallorrhiza multiflora*—phanerogamous plants destitute of chlorophyll.

Some of the more important facts ascertained in the investigation are thus briefly stated: 1. Iron, firmly combined, is a constant constituent of animal and vegetable chromatin. Another compound, less rich in iron, is found in nucleoli. 2. The chromophilous substance in ferment-forming cells contains iron, and the cytoplasm of Protozoan organisms, which also probably secretes ferments, yields evidence of the presence of a firmly combined iron compound. 3. A firm compound of iron is present in the chromophilous substance of the cytoplasm of fungi. 4. Of the non-nucleated organisms, bacteria, owing to their minuteness, have, with one exception, given little evidence of the presence of an organic iron compound; but in the *Cyanophyceæ* the chromophilous portions of the "central substance" contain iron, and iron may also be demonstrated in the peripheral granules formed of the so-called cyanophycin (Palla).

A Complimentary Clinical Report.—Dr. Augustus C. Bernays, of the Marion Sims College of Medicine, of St. Louis, has issued a handsome pamphlet containing the reports of a number of important surgical cases in which he operated last November in the presence of many well-known physicians who were in St. Louis on their way to attend the meeting of the Mississippi Valley Medical Association. The report is published as a compliment to those gentlemen.

An Enormous Vesical Calculus.—At the last meeting of the Medical Association of Georgia, held in Savannah on the 17th, 18th, and 19th inst., Dr. W. S. Armstrong, of Atlanta, exhibited a calculus which he had removed from a young man by the suprapubic operation on December 4, 1894. The calculus weighed thirteen ounces and a half and was twelve inches in its greatest and nine inches and a quarter in its least circumference. This is believed to be the largest stone ever removed in this country, the next in size being one weighing nine ounces and a half removed by Dr. J. William White, of Philadelphia. Dr. Armstrong's patient made a good recovery and is now pursuing his occupation as a farmer.

A Correction.—Dr. R. H. Cunningham asks us to state that an error crept into his article as it was published in our last issue, on page 494. The formula for the alcohol-formalin mixture should have read: *Equal parts of alcohol, formalin, and distilled water.*

Lectures and Addresses.

CREDULITY AND SKEPTICISM IN MODERN MEDICINE.

THE ANNIVERSARY ADDRESS BEFORE THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

BY GEORGE HENRY FOX, M. D.

MR. VICE-PRESIDENT, LADIES, AND GENTLEMEN: The student of human nature finds in every calling the same types of men. While education in general and professional training in particular may stamp the individual with habits of thought and peculiarities of manner, there are certain innate characteristics of his mind which assert themselves under all circumstances. These mental tendencies are divergent and lead individuals to opposing extremes of thought. In political affairs the conservative and the radical, under a variety of names, have always contended for supremacy by pulling in opposite directions. In theology a never-ending warfare has ever been waged between orthodoxy and heresy, and, though men have been influenced by various reasons in taking one side or the other in religious controversy, it is evident that one man is by nature a zealot as another is a latitudinarian.

In medicine the same mental tendencies are readily discovered. The progressives, including the majority of the younger members of the profession, are always eager to adopt that which is new and to move onward, even though they find it necessary often to retrace their steps. On the other hand, the conservatives or "fogies," who, by the way, are not always old, are as naturally inclined to be content with things as they are, and to do precisely what their fathers did before them.

In the intellectual progress of the age, however, both of these elements are moving onward together. Some active spirits will always crowd into the bow of the boat, and strain their eager eyes to catch the first glimpse of the unknown land which lies before them. Others will be content to sit in the stern and gaze at the foam-flecked wake that marks their progress. But whatever position we occupy, and in whatever direction our faces are turned, the spirit of the age in which we have embarked is carrying us all to the same goal, and with the same speed. No man can escape being influenced by the prevailing thought of his generation, and, whether he be a leader or a follower, whether he be in the van or the rear of the column, he can not do otherwise than advance. In every sphere of intellectual activity we are constantly moving forward, and the very rear of the procession has reached a point to-day which was perhaps far beyond the vision of the leaders of a preceding generation.

In medicine these mental tendencies lead to credulity on the one hand and to skepticism on the other. Physicians of one type exhibit an unbounded reverence for tradition, and are prone to believe almost everything that is taught. Those of a different temperament show little respect for the opinions of their predecessors, and hesitate to pin their faith to whatever is beyond the pale of their limited experience.

From credulity no individual is wholly free. Even the most confirmed skeptic is apt to be credulous at times and in regard to certain subjects. This element of human nature, which leads us to accept statements of fact upon insufficient evidence, has flourished as the offspring of ignorance in every age. It has furnished material for many chapters in the history of medicine. It inspired the ancient belief in witchcraft and demoniacal possession, and prompted the oft-repeated search for the philosopher's stone and the *elixir vitæ*. It exists to-day in as marked a degree as it did centuries ago, although its absurdities are by no means as patent to us as they will be to those who look back upon this age a century hence. Credulity pervades all professions and all classes of society, and from its baleful influence neither the physician nor his patient can wholly escape.

The credulity of patients is a matter of every-day observation on the part of the physician. It is sometimes amusing; often it is lamentable. In fact, there is nothing more disheartening to the educated physician than to find that, after he has spent time and money in qualifying himself to pass judgment upon a case, his opinion is considered of no more value than that which is perhaps offered *gratis* by some uneducated and meddlesome busybody. The physician may be proud of his learning and of his reputation, but he can not escape a feeling of deep humiliation when he finds that his learning and reputation are wholly unappreciated. When he learns that a patient who is shrewd and successful in business and intelligent as regards the ordinary affairs of life, and who has paid him liberally for his advice, has listened with eager ears to the criticism of every old woman in the neighborhood, and finally concluded to consult some ignoramus or clairvoyant, he can not help feeling a sense of personal injury. This credulity of the average patient is the bane of the honest and conscientious physician, while it is the food upon which the charlatan thrives. The fact that it is far easier to make most patients imagine that they are well, or rapidly getting well, than it is to cure them, places a temptation in the path of every physician, and the fact that those who are ill in mind or body, or who imagine that they are so, are the most gullible class of people to be found, leads some men of education to forget the honor of their calling, and to stoop to practices which must degrade them in their own estimation, however much it may increase their income. But, to the credit of the medical profession, it may be asserted that the great majority of its members are proof against this strong temptation to practice upon the credulity of the public. Though well aware of the increased remuneration which such a course would insure, they are far more anxious to retain the respect of their medical brethren, and ever ready to sacrifice the opportunity of making money in order to uphold the honor and the dignity of their high calling.

Credulity on the part of the public has always been a drag upon the progress of medical science. It is the chief obstacle to higher medical education. While science has always been cultivated for its own sake by a chosen few, the character of the medical profession has ever been determined in accordance with the law of supply and demand. In every age and in every land the average doctor has invariably been the style of practitioner which the people have desired. In the days when a belief in sorcery and astrology prevailed, the doctor naturally resorted to incantations, and sought for prognostic signs in the motions of the stars. Among savage tribes, who are imbued with the idea that sickness is due to the possession of an evil spirit, we find the medicine man beating a gong and seeking by other such means to frighten away the demon. It is only in communities where medical science is appreciated at its true value that physicians are willing to devote long years of study to a thorough preparation for the practice of their art. At the present day and in our own land the high position to which the medical profession has attained is largely due to the general appreciation on the part of the public that learning and experience constitute the basis of medical skill. The people demand that those to whom they confide their lives shall be men of education, thoroughly trained to accept the responsibility placed upon them, and the result is that, in the State of New York at least, no man who is not so qualified can practice for a day with impunity. But, so long as there remain some people of alleged intelligence, who are prone to a belief in miracles and faith cures, whose natural bent is toward mysticism and the alluring vagaries of pseudo-science, is it to be wondered at that more or less charlatanry is sometimes mingled with the practice of medicine? So long as patients like to be humbugged, there will always be some physicians willing to perform the operation.

But credulity in medical matters is not entirely monopolized by our patients, nor is it to be found only among the laity. The medical profession is by no means free from this unfortunate tendency, and manifests it in a variety of ways. A most striking example is seen in the general belief in the efficacy of drugs under all circumstances and in the necessity of administering them whenever an occasion offers. The average physician seems thoroughly saturated with the notion that the writing of prescriptions is the chief end of the medical man. His patient may be weary and need rest, poorly nourished and in need of food, surfeited and in need of a restricted diet, overworked and requiring relaxation, or addicted to habits which need only to be checked or abandoned. In short, his patient may simply need, as do very many of our patients, nothing more nor less than a little judicious advice—advice which any man with common sense perhaps might give, and which the physician of all men should be most competent and most ready to give. But how few physicians under such circumstances can refrain from seizing pen and pad and scribbling off the inevitable routine formula in abbreviated Latin! With this may possibly be offered in an unimpressive manner a few words of advice; but it is the Latin prescription upon which the physician usually lays most stress, and for which he expects to collect his fee. The result is that the patient hies to the apothecary, forgetting on his way the good advice which he may or may not have received, and merely trying to remember whether it was a teaspoonful or a tablespoonful of the medicine that was to be taken, and whether it was before or after meals.

This perfunctory administration of drugs is one of the crying evils of the medical practice of the present day. The physician is too frequently imbued with the idea that it is not only his privilege but his professional duty to hand over to the patient a written prescription. In the minds of the laity the common belief prevails that disease can only be cured by drugs, and this belief is generally encouraged and often unfortunately shared by many of our profession. Indeed, it is the undue importance which the physician usually attaches to his Latin prescription which leads patients to believe that his advice is perhaps worth listening to but seldom worth following.

Most physicians of experience will readily agree that the majority of patients who consult them for chronic ailments are far more in need of judicious advice regarding their habits of life than they are in need of medicine. And yet how few of us ever make the advice more prominent than the medicine! Theoretically, the advice and the prescription may supplement each other and both do good. Practically, the written prescription is apt to do positive harm in many cases by diverting the patient's mind from the advice which is so essential for him to follow, and centering it upon the pharmacopœial remedy. It is this unfortunate custom on the part of physicians of writing a prescription for each and every patient that fosters the popular belief that disease can only be cured by drugs, and does far more than anything else to increase the business of the patent-medicine vendors. It is this routine administration of drugs that is gradually shaking the faith of the public in the efficacy of orthodox medical treatment—lessening confidence in true medical science, and leading many people of intelligence to investigate the alleged virtues of Christian science, mental healing, electric appliances, and movement cures, or forcing them to the conviction that they will do better under the care of the athletic trainer than in the hands of the average drug-prescribing doctor.

And now that the allusion to athletic training has been made, let me ask if it be not a fact that simple hygienic treatment is plainly indicated in many cases in which drugs are freely administered? Would not a large number of our patients with chronic disease be better off in the hands of a judicious trainer than under the care of a grave and reverend pharmacophile who, in spite of his profound study and ample experience, has yet to learn that highest of all professional attainments, the art of harmonizing medical science with common sense? Doubtless there are many physicians who, if quietly asked this question, would not hesitate to answer "Yes," although they might not care to publish their opinion through fear that it would reflect discredit upon the profession. But if we believe that it is a common practice to administer drugs to patients who would be as well or better off without them, and to ignore the simpler and more effective, though less mysterious, methods of healing, the sooner the fact is generally recognized and frankly admitted the better it will be for the reputation of our profession. Delusions, such as homœopathy, with its sugar-coated expectancy, and Christian science, with its ancient ideas glossed over with a modern psychological varnish, are not merely absurd whims that have sprung from ignorance or charlatanry. Far from it! They are the protests of many men and women of intelligence against medical error. They are protests against the slavish adherence to traditional methods of treating disease. They are protests against that fetich of modern medicine, the routine administration of drugs. Ill-founded and ridiculous as these modern substitutes for rational medicine may appear to us, we can not afford to miss the lesson which their existence and widespread acceptance would teach us. If we fail to discover our faults and to amend them in due time, rest assured that they will be discovered and brought to our notice. Let us not wait until a humiliating lack of confidence on the part of the intelligent public arouses us to a keen sense of our shortcomings. Let us not cherish our mistakes until our honored profession, which should mold medical thought and lead the public to a higher appreciation of the great advancement made by medical science, realizes that its prestige is waning, and that it has fallen back to a position in the rear of public sentiment.

The credulity of physicians is also shown in the present craze for new remedies. The manufacturing chemists on both sides of the Atlantic seem to vie with each other in flooding the market with new chemical substances or old ones under a new and high-sounding name. These substances are always theoretically of value. Each one is submitted to one or more experts, who are possibly well paid for a favorable report as to its virtues in actual practice. Other physicians are readily found who, animated by an unbridled enthusiasm for anything which is new, are glad to be among the first to test the remedy, and who are seldom, if ever, inclined to damn it with faint praise. A few glowing accounts of its wonderful efficacy are published in pamphlet form and scattered broadcast for the information of the profession. The advertising pages of our medical journals dazzle the eye with the names of the new remedies in large, bold-faced type. The average physician, fearing to be considered behind the times, prescribes the new remedy on every occasion and to the great satisfaction of the manufacturer, if not to the benefit of his patients. But long before he can possibly arrive at any just conclusion as to its merits he finds that he is forced to discontinue its use in order to try some newer remedy which has taken its place.

A generation ago the *United States Pharmacopœia* was known and respected by every educated physician in the land, and pharmacopœial prescriptions were almost the only ones in vogue. To-day a large percentage of the profession are unaware of the existence of such a book. Pharmacopœial prescriptions are the exception, and proprietary remedies of unknown composition are the rule. It is true that new remedies of great value have recently been introduced in medical practice, but it is also true that the majority of those which now flood the market and absorb the attention of many physicians are either worthless or of questionable merit. They are introduced and extensively advertised, not for the sake of suffering humanity, but for the pecuniary gain to their enterprising originators. The result of this must necessarily be detrimental to medical practice. Whereas the physician of a generation ago was quite as familiar as the apothecary with the drugs which he prescribed, the physician of to-day is daily prescribing drugs which he himself has possibly never tasted, handled, nor seen. He is, moreover, led into laying aside the old, tried, and effective remedies, and misled into using certain new ones of the nature of which he is ignorant, and of the effect of which he is uncertain.

But with all the credulity that pertains to modern medicine there exists at the same time a considerable amount of skepticism. This manifests itself in different forms, and may be either prejudicial or beneficial to the advance of science. In so far as it fosters a bigoted opposition to every change in the existing order of things, and interferes with the impartial examination of all novel ideas, it is harmful. But that skepticism which is born of a desire for bringing the truth to light, which refuses to allow blind faith to usurp the place of reason, is in no wise a bar to medical progress. On the contrary, it has shaken the foundations of error in the past, and promises to emancipate us from many a delusion in the future. We are often confronted with the statement that we are living in a skeptical age. Let us be thankful for that tendency of mind which leads us to distinguish between shams and realities, and which demands that rigid investigation must ever be the antecedent of belief.

It is often asserted that with increase of experience in the treatment of disease physicians are prone to lose faith in medicine. And it is certain that the older a man grows the more inclined he becomes to use only a few remedies, the value of which he has repeatedly proved, and upon the action of which he can confidently depend. But this restriction in the number of his remedies is not necessarily the result of a lack of faith in medicine. It is rather the natural outcome of caution in accepting the careless assertions as to the value of drugs with which our medical literature has always been burdened. It is a loss of credulity rather than a lack of faith. A long and often a disappointing experience has taught him that where there are many remedies for one disease it is highly probable that all are of comparatively little value. He prefers to cling to one remedy the effect of which he can depend upon, and which he can use with benefit in many diseases. He has learned the sad truth that the enthusiastic therapeutist who is extolling the value of a new remedy to-day is certain to be chanting in even a higher key the praises of some other remedy in the short space of a few months. This therapeutic skepticism, which is so often the outcome of age and experience, may be regarded as a balance wheel of medical progress, and can not be too strongly commended to the younger members of the profession.

There is no necessary connection between advancing years and loss of faith in medicine. We all know that some of the oldest and most honored of our profession are as enthusiastic in the acquisition of knowledge, as receptive of all new facts and theories, and as free from any suspicion of routinism in practice as are any of their younger colleagues. Whatever their age, they are as zealous students of medicine to-day as they were when they first sat upon the college benches or studied over their earliest cases. There is a striking contrast between such men and some others whose heads are equally gray or bald—some who imagine that they learned all that there was to know before graduation, and who during the "forty years' experience," to which they are wont to refer with such frequency and such supreme complaisance, have forgotten more than they have acquired. Respect is due to age under all conditions, but to those veterans in our profession whose age implies long years of patient and unremitting study we render not merely respect, but an homage which words can not express.

The medical literature of the present day is strongly conducive to medical skepticism. Few of the many books published are authoritative, and our medical journals are nearly filled with matter which is ephemeral in character. Week after week articles on various topics are published which would certainly never appear in print if their authors were obliged to pigeonhole them for six months before submitting them for publication. Careless observations, illogical conclusions, and incorrect statements of fact are the bane of our current literature, and we seem to be rapidly nearing the time when the average medical journal will be regarded as quite as untrustworthy as the daily newspaper.

It is a very simple matter to publish an absurd or erroneous statement. It is not always an easy matter to refute it. If a physician of reputation, or one without, for that matter, claims in a medical journal that a grain of sodium chloride taken every hour will cure the *grippe* or make hair grow on a bald head, the startling statement is assiduously copied, and for a year or more goes the rounds of the journals. In many cases it finds an abiding place in one or more text-books. If during this time some other physician puts the assertion to the test of careful and prolonged experimentation and demonstrates its falsity, he may publish the result of his labor, but few will care to read it, and no journal will take the trouble to copy it. Truth may sometimes be stranger than fiction, but in our current medical literature the novel and the improbable seem to possess a spice most acceptable to the taste of the average reader, while the cold, naked truth is apt to prove tasteless or unpalatable.

The extensive and ever-increasing list of our medical journals, the utter lack of censorship exhibited by many editors, and the great number of medical men who appreciate the fact that the writing of articles, good, bad, or indifferent, is the shortest cut to professional reputation, are elements which militate against that improvement of our medical literature which we should gladly welcome. Few if any will deny that our weekly and monthly publications are susceptible of great improvement. Admirable as some of them are, it is certain that our medical journalism of to-day does not impart the instruction, does not inspire the respect, and does not exert the powerful influence in molding professional opinion which is within its province, and which we have just reason to expect from it.

The medical-journal writer *currente calamo* is quite as autocratic as the clergyman in his pulpit. The one writes, as the other speaks, with little or no fear of contradiction. The quiet occupant of the church pew is often compelled to listen to views with which he does not thoroughly agree, and to sweeping statements the truth or fairness of which he is strongly inclined to doubt. But all he can do is to sit in silence and wish that the other side of the question might be presented with equal zeal and ability. And so the reader of the medical journal, as he meets with assertions which do not tally with his own experience, or a line of reasoning which seems to him to be careless or illogical, becomes naturally impatient with the one-sided presentation of the subject which is forced upon him. He longs for an opportunity to have the writer of the article in a witness box and to subject him to a rigorous cross-examination. By such means he feels confident that the chaff might be separated from the wheat, and that in many cases the writer might be taught the valuable lesson that it is always a simple matter to assert, but often a difficult task to furnish proof.

It would certainly be an improvement in our medical journals if both sides, or various views of a question, were to be presented to the readers in the same issue. As is frequently demonstrated in our medical meetings, it is not the *ex-cathedra* deliverances of one mind, but the clashing of opinion in a free discussion, which proves to be the most entertaining and instructive. Possibly the medical journal of the future will constitute the chief forum for medical discussion, and publish no articles unattended by competent criticism. If so, it will seem more like the report of a medical debate, and less like a compilation of medical sermons.

There is one phase of skepticism in medicine which is the outgrowth of personal prejudice or national jealousy. It manifests itself in a belief that outside of a certain school, or sect, or nation, no scientific advancement can be made that is worthy of consideration, and that all ideas emanating from such a source are to be condemned without a hearing, and their upholders subjected to ridicule and persecution. This skepticism is the starting point of bigotry, and in many instances has fostered dissention and greatly impeded medical progress. As free thought and speech are cherished by us as inalienable rights pertaining to every citizen, so liberty of opinion on all medical questions is now conceded to be the birthright of every American physician. But in this free country our professions have not always coincided with our actions, and so far as the right of individual judgment is concerned there has been intolerance and bigotry in medicine as well as in religion. Our Puritan ancestors, who persecuted those who simply claimed the same freedom of thought for which they themselves had suffered, did not exhibit a unique phase of human nature. They bequeathed their spirit to many members of our profession, who in a past generation were quite as intolerant of homœopathy and Thomsonianism, and quite as ready to persecute those whose medical opinions were not up to the standard of their self-constituted orthodoxy. It is largely due to their narrow bigotry and to their ill-advised attempts to stamp out medical heresy that sectionalism exists in our profession to-day—a sectionalism which reflects discredit upon science, and which hampers our best efforts in behalf of humanity—a sectionalism which we no longer regard with indignation, but which we most heartily deplore, and which is destined, as we both hope and believe, to lessen, and eventually to disappear.

But in spite of credulity and skepticism, and even the bigotry from which it must be confessed our profession is not yet entirely free, the status of the physician of to-day is immeasurably above what it was even a generation ago. The world has long been growing wiser and better, but now it seems as though we were advancing by bounds instead of by slow paces.

To appreciate fully what an intellectual revolution the past generation has produced it is only necessary to go back a few years to a period within the recollection of the older members of this society, and to compare the ideas which were then accepted in various fields of thought with those which prevail at the present day. In matters pertaining to theology, education, medicine, and other branches of speculative science the change which has taken place is a most startling and exceptional one; and, although it has been gradual and almost imperceptible, it is certainly as notable as the marked advancement which has been made along the lines of invention and discovery. Possibly our fathers and grandfathers were able to look backward and note a great change in their generations, but there can be no doubt that as regards intellectual advance the past generation has been the most remarkable in the world's history. The trend of thought for many successive years has been in a certain direction, and has finally culminated in the great change which has taken place in our lifetime. The views of thoughtful men and women have undergone a marvelous transformation during the past half century. In theological discussions strict dogmatism has lost its power. The fear of hell fire is no longer thundered from the pulpit as the main incentive to an upright life, and the belief that true religion conflicts with the established facts of science is gradually being surrendered. In educational affairs a much-needed reformation has been wrought. The schoolmaster's birch has become a mere tradition, and "the whining schoolboy creeping like a snail unwillingly to school" is utterly inconsistent with the prevalent idea of our day that learning should be made a pleasure and not a task. In medicine what a change has taken place! Leaving out of account the magnificent advances of modern medical science, what a change has taken place in the minds of the public respecting the function of the physician! The idea of combating disease solely by heroic measures has given place to the belief that the physician's first duty is to prevent disease, and the bleeding, blistering, physicking doctor of forty years ago would seem sadly out of place in this day of hygienic sanitation and careful nursing.

But the achievements of the past, even those which have taken place within our own recollection, and of which we are in one sense a part, should not be made the subject of boasting. They are simply suggestions of our present ignorance, and intimations of those still greater achievements which are certain to follow in the years to come. As we look back and smile at the credulity of our predecessors, or wonder at their skepticism and intolerant opposition to views which now are firmly established, let us remember that human nature has not changed, and embrace the opportunity of beholding ourselves as we shall undoubtedly appear in the eyes of our successors.

Original Communications.

SOME THERAPEUTIC EXPERIENCES WITH THYREOID FEEDING.*

By LEO. STIEGLITZ, M.D.,

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Ever since the study of myxœdema and its thyreoid treatment showed to what an extent the thyreoid gland controls the trophic condition of the skin and influences the nervous system, it has been tried in an experimental way in a number of other cutaneous and nervous diseases. Thus Bramwell,† Davies,‡ a number of other English authors, and more recently Crary,# in this city, tried it in psoriasis, curing six cases out of seventy-seven—not a very encouraging result. It has also been used with some success in cases of ichthyosis, scleroderma, and chronic eczema; without success in lichen planus and various other cutaneous diseases.

My own experience with thyreoid dates from the summer of 1893. The very remarkable effect observed from its use in myxœdema upon the growth of the hair and nails suggested to me its use in a case of peculiar disease of the latter, for which no local cause could be discovered.

Case I.—The patient, Dora D., aged twenty-two years, single, and a cook, first sought my advice September 4, 1893, in regard to the diseased condition of her nails. She did not remember when the trouble first began, but stated she had doctored for it for over a year without any success.

The nails in which the disease is most advanced are of a brownish hue, as if mortified; they are rough, irregular, and misshapen; they are short and stunted, as if retarded in their growth. The disease, where less pronounced, involves only part of the nail in longitudinal section, the diseased part being brown and occasionally separated from the healthier part of the nail by a longitudinal split. The nails least affected are rough, brittle, and mottled in appearance.

The skin of the hands is rough to the touch and slightly puffy. The growth of hair on the head and other parts of the body is abundant. The skin of the face and body is not abnormal in any respect. The nails of the toes show the same diseased condition as those of the fingers. A careful examination

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* Read before the Manhattan Medical and Surgical Society, December 29, 1894.

† Bramwell. *Brit. Med. Jour.*, 1893, ii, 933.

‡ Davies. *Brit. Jour. of Dermat.*, 1893.

Crary. *Med. Record*, Oct. 6, 1894.

of the nervous system and of the various viscera revealed no disturbance of any kind.

The patient was put upon five grains of Parke, Davis, & Co.'s desiccated thyreoids, once a day the first week, the second week twice a day, and subsequently three times a day. At no time were any ill effects from the use of the drug noticeable. In the latter part of October, four weeks after the commencement of the treatment, the patient began to shed her nails and some of her hair. By the end of December a set of new, well-developed, smooth, and shapely nails had replaced the old diseased ones. The skin of the hands became smooth and soft. The loss of hair was followed by a more luxuriant growth than had been present before. The patient was presented in this condition to the New York Society of German Physicians on February 23, 1894. She subsequently stopped taking thyreoid for a few weeks, and her nails began to show signs of returning disease, which disappeared when the treatment was taken up again, five grains being given every day or two.

Case II.—Paula D., aged seventeen years, sister of the first patient, was brought to me by her sister on February 23, 1894. The nail of her right thumb is affected in the same way her sister's nails were; it is brown, rough, thickened, and stunted in its growth. The girl worked for a year and a half in a gold factory, where she often had to put her thumbs into a solution of ammonia. The last six months she has not been working. She has noticed the change in her right thumbnail for the last year; none of the other nails are affected in the least. The patient was presented to the New York Society of German Physicians before being put upon a thyreoid preparation. The latter was administered in a five-grain dose once a day, the same preparation being used, and created so much nausea that the patient stopped the treatment after a few days. During the next nine months the condition of the nail remained unchanged, the nail not growing at all, according to the patient's statement. On December 5th she began taking Burroughs, Wellcome, & Co.'s five-grain thyreoid tabloids, one a day, and has continued doing so ever since, the tablets creating no disturbance of any kind. Within a few days the nail began to grow, and on December 23d it was already half renewed, the new part being somewhat uneven, but of proper color and consistence.

I am able to show you to-night the nail in this stage of repair. The contrast between the healthy and diseased portion is striking. Whereas the proximal half is healthy in color and consistence, though uneven, the distal half is brown, brittle, and stratified. If the treatment is continued I do not doubt that the nail will be entirely restored.

These two cases show that even in the absence of myxœdema thyreoid feeding stimulates the growth of nails to a remarkable degree.

Case III.—Mary N., aged thirty-three years, single. The patient was never seriously ill until the spring of 1891, when she was taken sick with the grippe. She suffered from fever, cough, and pains all over her body, and especially in her legs; both feet were swollen, the right more than the left one; the swelling was white and not painful. After recovering from the grippe she felt very weak for six or eight weeks. The swelling in her feet disappeared very slowly. About two months later she first noticed two reddish spots on the inner aspect of the right ankle, each about the size of a quarter. The spots itched considerably, so much so that she rubbed them with a brush until they bled. They gradually grew larger, turning a dirty yellow color. At the same time the disease spread up the leg, involving the area of skin corresponding to the distribution of the internal saphenous vein.

The patient, who was kindly referred to me by Dr. Fleiner, of Heidelberg, was first seen on September 21, 1893.

Present Condition.—She is a large, well-developed woman; her skin is soft and pliable all over the body, except in the affected area of the right leg. The left leg is perfectly normal. The skin of the inner aspect of the lower leg from the ankle to the knee is thickened and of a dirty yellow tinge; it is shiny, and feels like leather to the touch. At the ankle it is glued to the bone; the diseased skin can not be raised in a fold, and is divested of all hair. About an inch above the knee there is a reddish-blue spot of the size of a five-cent piece; the skin at this point does not appear thickened, but is decidedly so to the touch. Another smaller spot of the same character is present about two inches farther up. These two spots present the disease in its first stage. The skin immediately adjacent to the thickened area on the lower leg is distinctly œdematous. Tactile sensibility is slightly diminished over the entire diseased area; otherwise no neurotic disturbance of any kind can be found. The thyreoid gland can be felt, and does not seem to be altered in any way.

The diagnosis of *scleroderma circumscriptum* was readily made, as the changes were very characteristic. The patient had been taking arsenic for some time, but without any sign of improvement. As the condition of the skin resembled in some respects that found in myxœdema confined to a small area, I put her upon desiccated thyreoid gland (Parke, Davis, & Co.), five grains from one to three times a day; at the same time strychnine and tincture strophanti were administered, and electricity was applied to the leg. By November 1st the skin on the calf of the leg was somewhat more pliable; otherwise there was no change. The treatment was stopped for three weeks and then taken up again—five grains three times a day being administered—and was kept up, with occasional intervals of a week or ten days, up to October of the present year—*i. e.*, twelve months. During this time the œdema along the tibia disappeared, the skin became more and more pliable and soft, and a new growth of hair appeared in the diseased area. The improvement set in in the most recently affected part—*i. e.*, in the two spots above the knee and the area immediately below the knee, and was least marked about the ankle, the primary seat of the lesion.

On February 23d the patient was presented to the New York Society of German Physicians in a greatly improved condition. This improvement has continued without interruption. The patient was last seen on the 23d of this month, and with the exception of a slightly thickened patch immediately above the ankle the skin of the diseased area is as soft and pliable as that of the other leg; it can now be raised in small folds from the ankle. The only sign of the disease left is a tawny discoloration of the skin, which is deepened immediately before menstruation.

It is not maintained that scleroderma can be cured by thyreoid feeding. The change for the better and ultimate recovery may have been coincident with the thyreoid treatment without having been due to the latter, as scleroderma, like alopecia areata, after running its course for some time has been known to take a change for the better and gradually disappear without any apparent cause. Nevertheless, the fact that immediately prior to the commencement of the treatment the disease had been steadily progressive and that improvement set in with the treatment does seem to indicate a causal connection between the two.

Case IV.—Miss K., aged twenty-three years, dressmaker, was first seen at the Mount Sinai Hospital Dispensary on January 15, 1893. This is the case of progressive hemiatrophy of the face reported by Dr. Sachs in the *Medical Record* in 1890. As the case is fully described there, I shall only state that the patient claims to have been well until 1889, when she noticed the first signs of her present trouble. A small white patch appeared on the left lower eyelid and gradually grew larger. More spots appeared about the mouth, and at the same time the patient noticed that the left side of her face was growing smaller. From the very first occasional twitchings occurred in the left masseter. These twitchings have been growing more severe from year to year, and involved both the temporal and masseter muscles for the last three years. They consist of a number of clonic contractions, followed by a powerful tonic spasm, so powerful that it is impossible to separate the patient's jaws. The spasms are painful and a source of great annoyance to the patient, as they interfere with her speech and disturb her in eating. She had become resigned to the disfigurement of her face, but sought relief from the spasms. As the application of the galvanic current had given relief from this very symptom in another case of hemiatrophy of the face under my care,* the patient was put upon a course of electricity. This treatment was continued for two months without any effect whatsoever. I then suggested a trial with thyreoid, being led to do so by the following line of reasoning: The trophic changes in the skin in hemiatrophy of the face greatly resemble the second or atrophic stage of scleroderma; in fact, from my own observations I am inclined to believe them to be closely related. This belief is strengthened by the significant fact that in a number of cases reported (Newmark, Rosenthal, Eulenburg, Nixon, Muratow) scleroderma has been observed associated with facial hemiatrophy. After my experience with thyreoid in the case of scleroderma of the leg, a trial with it in the present case seemed proper. Accordingly, on March 24th the patient was put upon the desiccated gland, five grains twice a day. In spite of orders to report in two days, she did not put in an appearance again until May 7th, after she had consumed an ounce of thyreoid. She reported that she had taken ten grains a day without interruption; that after she had taken the capsules for about a week the spasms had ceased entirely and had not reappeared since. She suffered occasionally from prickling sensations all over her body, with the sole exception of the left (affected) side of the face. There was no change in the condition of the latter. The treatment was stopped for three weeks. Within a week the spasms returned, and were as severe as ever. When the treatment was taken up again the spasms became very much better, but did not disappear entirely. Strange to say, although the treatment has been continued up to date, the spasms have recently become more frequent and as severe as ever. No effect upon the hemiatrophy itself was ever noticeable.

It is not my purpose to discuss at this moment the manner of action of the thyreoid juice in the above-reported cases, our knowledge of the physiology of the thyreoid gland being still too limited to afford a sound basis for such a discussion. For the present we must content ourselves with recording carefully observed facts in the hope that they may ultimately, in connection with other observations, help to throw light upon the remarkable relationship between this peculiar gland and the structures of the skin and the latter's first cousin, the nervous system.

571 Park Avenue.

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* Muscular spasm in hemiatrophy of the face is not so very uncommon. I find it observed in the cases of Buzzard, Ziemssen-Wette, Wolff, Emminghaus, and Muratow, among others.

ON THE CONNECTION BETWEEN AFFECTIONS OF THE STOMACH AND DISEASES OF OTHER ORGANS.

By M. GROSS, M. D.

A full comprehension of the morbid processes in the stomach, of the symptoms of disturbed gastric digestion, can not be obtained without considering the relations between the stomach and the diseases of the other organs of the body; for every affection of the stomach is reflected back on the other organs, and inversely every disease of the organs reacts upon the stomach.

It is chiefly circulatory disturbances that lead to symptoms of congestion and its sequels which predominate in the morbid picture in diseases of the heart, the lungs, and the liver.

All diseases of the heart, whether of the valves, the heart muscle, or the pericardium, are sooner or later followed by the same result—namely, that, owing to the inevitable circulatory disturbance, the blood pressure sinks in the arterial system while it rises in the veins, which empty their blood with difficulty into the heart. In this way symptoms of congestion appear, which manifest themselves in all the organs of the body, and hence also in the stomach. These symptoms of congestion may be absent, as a rule, for a certain length of time in valvular disease, owing to the compensatory activity of the heart. It is only when this compensation is insufficient from the start or becomes defective in the course of the disease that passive dilatation of the heart ensues and is followed by the above-named circulatory disturbances and their sequels.

With reference to the circulatory disturbances in chronic diseases of the lungs, the diastole will no longer be sufficient, owing to the difficult inspiration, the afflux to the heart will be reduced, and therefore congestion must result. For instance, in emphysema, owing to the decreased pulmonary elasticity, the minor circulation is interfered with and the pressure in the pulmonary artery is increased by the destruction of numerous capillary regions. The blood pressure falls in the arterial distribution, the flow is retarded in the pulmonary circulation, and the final result is a slowing of the blood current in the latter; furthermore, there is stagnation in the veins of the major circulation and a retardation of the flow in the capillary regions.

In phthisis, in chronic pneumonias, and in the chronic forms of bronchitis circulatory disturbances are likewise caused by the permanent insufficient respiration. The restricted inspiration, with the resulting slower aspiration of the blood into the lungs and the heart, form the causal factors in the manifestation of the circulatory disturbances, which in later stages extend also to the major circulation.

As is well known, every prolonged congestion first leads to increased fullness of the vascular plexus in the affected region and a congestive transudation takes place;

the overloading of the parenchyma with products of metabolism is bound to exert a most pernicious influence upon the functions of the parts and upon their future nutrition. The accumulation of the transudation leads also to mechanical nutritive disturbances of the tissues, and, if these conditions persist for a longer period of time, to connective-tissue proliferation (induration); finally, the parenchyma may undergo atrophy. But the progress from congestion to induration and its sequelæ is slow, inasmuch as compensatory processes come into activity. The first of these may develop locally, since, owing to the peculiar arrangement of the capillaries of the stomach, congestion can not be easily established. And even if the process has advanced one step farther toward the deleterious results of congestion, there are various ways in which the obstructions can be overcome by natural means.

Thus it is by no means uncommon in certain gastric affections associated with hyperchlorhydria—*i. e.*, those in which the carbohydrates are digested with difficulty or not at all, and cause symptoms of irritation of the gastric mucosa by their prolonged presence in the stomach and their fermentation, and are moreover accompanied by unfavorable results from their weight—that increased motility comes in action, which insures a timely or even more rapid removal of the ingesta.

In a few cases, as a matter of fact, nothing remains of the three important functions of the stomach—secretion, motility, and absorption—but motility, and even in such cases the patients may continue comparatively well so long as this important compensatory power is preserved so as to propel the food in time and completely into the intestine. In that event, judging from some well-marked examples, the intestinal secretions are quite capable of effecting the digestion of the food, at least for a time.

Among the diseases of the heart it is the lesions of the mitral valve which lead earlier and more readily than those of the aortic to venous congestions in the stomach when the compensation is disturbed, and, as the secretory activity of the gastric mucosa is reduced, to chronic catarrhs. But it should be noted that disturbances of the function of the stomach may occur even though the patients are clinically in the stage of sufficient compensation.

Congestions in the stomach occur at an early period of the heart disease, and the patients often complain of acid eructations and a sensation of fullness after eating rather than of the heart, which is the cause of the symptoms.

Hüfler never found free hydrochloric acid in patients with heart disease.

Adler and Stein, however, among twenty patients with heart disease found hydrochloric acid constantly in sixteen, occasionally in two, and absent in two. They explain Hüfler's results by his mode of examination. They trace the gastric troubles of patients with heart disease to central causes. It is true, chronic congestion can likewise lead to catarrhs, and in this way, in an indirect manner, to a diminution of the secretory activity of the gastric glands. Besides, a more marked interference with the venous reflux, such as occurs in pronounced compensation of the heart, will be followed by a restriction of the specific cellular activity, particularly with regard to hydrochloric acid.

Summarizing my own results briefly, I can only say that heart diseases *per se* have no influence upon the elaboration of hydrochloric acid. My findings varied between complete absence, inconstant presence of hydrochloric acid, and hyperchlorhydria—that is to say, in accordance with the prevailing condition of the gastric mucosa and the different other influences to which the secretion of hydrochloric acid is subject.

Owing to the congestion and the insufficient nutrition of the muscular elements in heart disease, we find the stomach not rarely in an atonic condition. Before entering upon the connection between gastric affections and diseases of the lungs, I should like to say a few words regarding the influence exerted by certain diseases of the nose upon the course of the functions of the stomach. The results of my investigations made with muco-purulent masses of a purulent rhinitis showed that the digestive power of an active gastric juice was weakened after the addition of such nasal secretion. Therefore disturbances of the chemical power, especially when the secretory activity of the gastric mucosa has been previously weakened, are apt to be temporarily caused in this manner, the small amounts of hydrochloric acid being neutralized. In the fœtid and purulent forms of rhinitis the patients swallow frequently, especially during the night, owing to the dryness of the throat, and drink repeatedly; thus the putrid masses are likely to reach the stomach and give rise to a direct or indirect inflammation of the gastric mucosa. In such cases I also found muco purulent masses contained in the rinsing fluid from the empty stomach, which could only be derived from the secretion of the associated rhinitis.

Fenwick, to whom we are indebted for more accurate patho-anatomical examinations of the stomach in phthisical patients, reports the following results of twenty-five cases: Stomach normal in six; slight interstitial inflammation in nine; round-cell infiltration of slight extent in four; amyloid degeneration of the stomach wall in one; fatty metamorphosis of all the gland tubes in four. But, according to Schwalbe, there is no constant relation between the dyspeptic disturbances possibly occurring during life and the patho-anatomical alterations of the mucosa.

Ewald states: "This much only might be considered certain, that the subjective complaints of the patients are not always substantiated by the degree of the objective findings, and that it depends entirely upon the extent of the anatomical or functional disturbance present in a concrete case how far it will affect the secretion of hydrochloric acid."

As a matter of special importance I wish to point out that in a number of cases the symptoms of dyspepsia may precede the first manifest signs of phthisis; this is the reason why, in spite of prolonged treatment of the gastric troubles, little effect is not rarely obtained, until some day the true cause of the phenomenon becomes apparent. These dyspeptic troubles already indicate the expression, the effect, of the venous hyperæmia and congestion as a result of the disturbed pulmonary circulation.

However, the functions of the stomach in one and the same patient are so variable that no general rule can be laid down; thus it often happened to me that I found in the examination of one patient no free hydrochloric acid, while two or three weeks later, without anything being done, nearly normal quantities of hydrochloric acid were present (Ewald).

In the initial stage of phthisis Klemperer found normal secretion and weakened motility; in pronounced phthisis, hydrochloric acid inconstant and hyperacidity; in the terminal stage, diminished secretion and dilatation of the stomach. The findings show nothing characteristic and are merely the signs of subacute and chronic gastritis. The cases of hyperacidity may be explained in the following manner: The great stimulation caused by the prolonged presence of food in the stomach produces more abundant glandular secretion; but the same stimulus to which the glands respond by increased secretion induces an interglandular cell proliferation in the mucosa, which again restricts the secretory activity. Finally, the anatomical alteration of the mucosa progresses, the glands cease to secrete, and anacidity occurs. The dyspepsia of phthisis, therefore, runs its course in the manner of a chronic catarrh beginning with motor weakness, secretion being normal; then follows a stage of hyperacidity; finally the secretion is arrested and dilatation sets in.

O. Rosenbach calls attention to the fact among others that sometimes, even in grave cases of phthisis, especially when slowly progressive, no digestive disturbances are found.

Hildebrand found that the absence of hydrochloric acid coincided with the higher temperatures.

In diseases of the liver, likewise circulatory disturbances—that is to say, in the distribution of the portal vein—and their deleterious influences on the function of the stomach play the most important part. On the other hand, there is often so intimate a connection between liver and stomach that not rarely we find it difficult to decide which condition is primary and which secondary. Thus, for instance, in profound digestive disturbances of the stomach there is contamination with the products of imperfect digestion of the blood in the portal vein, and as a result a retardation of the hepatic circulation, which in its turn must manifest its injurious effects on the stomach.

In cirrhosis of the liver we often find, as a result of the restricted portal circulation, hæmorrhages into the gastric mucosa which may give rise to the development of gastric ulcers. Such hæmorrhages, however, need not necessarily cause typical ulcers, inasmuch as the hæmorrhages may be parenchymatous and not circumscribed lesions of the mucosa, and in the mean time these processes, owing to the catarrhal condition of the mucosa, may produce diminution of the acidity so that the requisite disproportion between blood and gastric juice is lacking as a factor in the production of an ulcer.

With reference to the connection between the kidneys and affections of the stomach, Fenwick, in his oft-quoted paper, has furnished us the best information. Chronic diseases of the kidneys form the chief causes of chronic gastritis. In Bright's disease the incapacity of the kidney to perform its function in the proper manner seems to be the direct cause of the gastric disturbance. After injecting urea Fenwick found it in the contents of the stomach and in the alcoholic extract of the mucosa; from this he concludes that the gastric mucosa excretes certain poisons, urea, etc.; but that, as a result of the irritation induced by the process of elimination, an inflammation of the gastric glands occurs. Leube considers the dyspeptic symptoms in contracted kidney as a manifestation of uræmia in general of a nervous origin.

Bernacki found the gastric secretion diminished in nephritis; the hydrochloric acid more or less decreased, not rarely altogether absent; often there was a total lack of pepsin. The further investigations of the same author show: 1. That during the presence of oliguria and œdema the diminution of hydrochloric acid is more pronounced than after the restoration of the urinary secretion and the disappearance of the œdema; as the quantity of urine increased, so did the hydrochloric acid. 2. That when the œdema is more marked, when more albumin is excreted, and when the secretion of urine is lessened, the quantity of free hydrochloric acid is diminished proportionately.

Atonic conditions of the stomach are not often found in chronic diseases of the kidney, but very frequently an accelerated propulsion of the stomach contents into the intestinal canal (hyperkinesis). This increased gastric activity was found not only in quite recent but also in older cases, and at the same time hydrochloric acid might be present or not. This hyperkinesis explains why the food does not stagnate and give rise to catarrhs, and why the patients do not show the slightest subjective disturbance of the stomach despite the marked anomalies of the gastric secretion.

Incidentally I shall make mention of the pretended causation of a dilatation of the stomach by the pressure of the right wandering kidney upon the pylorus and the fixed portion of the duodenum, which is asserted to hinder the passage of the food from the stomach. I can recall two cases of my own in which there was a right wandering kidney associated with gastroptosis—*i. e.*, displacement of the entire stomach *in toto*—without dilatation.

In diseases of the intestines it is the obstruction of the portal circulation through the liver, during which congestion occurs in the entire fundamental distribution of this vessel, which is sure to manifest its injurious effects upon the stomach likewise.

According to Rosenbach, constipation—which, indeed, is frequently merely a consequence of gastric dyspepsia, because the digestive disturbances within the stomach in some manner weaken the peristaltic movements of the intestine—when marked or chronic in character, in turn gives rise to considerable dyspeptic troubles which apparently spring from the stomach, since it prevents the expulsion of the ingesta into the intestine, which is distended with fæces or gases. Of course, both constipation and gastric dyspepsia may represent co-ordinated conditions which develop simultaneously as a result of a general atony of the digestive tract (for instance, in anæmia). Ewald speaks of a case of typical gastrectasia without any demonstrable cause, developed after many years of obstinate constipation, which would lead one to suppose that the persistent sluggishness or paresis of the intestine may give rise to diminished peristalsis of the stomach. In this connection I may mention the disagreeable stomach troubles which manifest themselves by anorexia, pressure or pain in the gastric region of persons suffering from obstinate constipation, often lasting many days, which condition changes into a feeling of well-being after this constipation is overcome. I am inclined to look upon this as an irritation produced by the firmer contents through mechanical pressure upon the fibers of the sympathetic and vagus, unless we prefer to ascribe it to the simultaneously developed ptomaines.

I shall dispose with a few words of the connection of gastric affections with some diseases of the genital organs.

Of the various neuroses associated with retroflexion of the uterus and dependent upon it, the gastric neurosis is probably the most frequent. Often, however, we may observe the persistence of the gastric neurosis in spite of the cure of the retroflexion. Quite recently, indeed, clinical investigators have devoted increased attention to the digestive disturbances which are not due to an organic disease of the digestive apparatus but are based upon certain conditions of irritation or atony of the nervous system. Every gynæcologist will admit that women suffering for a long time from sexual diseases complain chiefly of gastric disturbances of a widely varying nature associated with them. In such cases we have to deal with dyspeptic disturbances without organic alterations of the digestive apparatus, in which the diseases of the uterus and its annexa give rise to centripetal irritations of the nervous system which in a reflex way act upon the digestion. Thus we often meet with gastralgias of the most violent kind with the onset of menstruation; in these cases there may be increased or continuous acid secretion which ceases after the flow.

I shall conclude with the digestive disturbances observed during or after general diseases.

How important it is to follow the rule of examining the urine of every patient is proved especially by diabetes, in which the dyspeptic troubles are often regarded as a disease *per se* until the sugar is accidentally discovered in the urine.

According to Leube, gastric digestion in diabetic patients is normal despite the greatly increased quantity of ingesta; in rare cases we may observe the development either of atony of the stomach or of permanent gastrectasia.

Rosenstein found in diabetes:

1. In a number of cases free hydrochloric acid is lacking for a longer or shorter period of time, and this absence is to be looked upon as the expression of a gastric neurosis.

2. Extensive atrophies of the gastric mucosa in consequence of an interstitial gastritis.

3. Where free hydrochloric acid is constantly absent the cause is to be ascribed to an atrophy of the glandular apparatus caused by an interstitial inflammation.

In anæmia and chlorosis, owing to the defective blood supply, the activity of the gastric glands suffers likewise; in the majority of cases of this disease we have to deal with a diminution of the hydrochloric acid. Still, there are exceptions to the rule; even in the gravest forms of anæmia, in the so-called pernicious anæmia, the acidity is by no means always diminished, according to Leube.

In chlorosis I frequently found atonic conditions of the stomach and not rarely pronounced dilatation; also a diminution in hydrochloric acid.

It is well known, too, that in consequence of the insufficient nutrition due to the deteriorated quality of the blood (possibly fatty degeneration of the vessel walls) there may occasionally be spontaneous hæmorrhages into the stomach. Equally well known is the fact that the large majority of gastric ulcers occur in chlorotic girls about the period of puberty.

Finally, as regards the gastric disturbances occurring in connection with malaria, no systematic investigations are to be found in the literature, to the best of my knowledge. I have collected fifteen cases of so-called masked malaria and made a careful examination of the secretory anomalies of the stomach.

Laveran, on November 23, 1880, first presented to the Academy of Medicine of Paris the communication that he had observed in the blood of patients suffering from the Algerian form of malaria peculiar protozooid organisms which do not occur in other diseases and most probably cause malaria. Since that time Laveran's investigations have been confirmed by many observers.

For my investigations I selected that form of malaria which we term masked (larvata)—a disease which is not rare here in New York, owing to the situation of the city and the frequent excavations in the streets, which expose the deeper layers of the earth and bring to the surface numerous vegetable substances to be acted upon by the sun. This disease rarely manifests itself in violent or typical pyrexial attacks, but rather by a feeling of lassitude, especially in the legs, and drowsiness at certain hours. Some patients complain of neuralgias of various kinds—cephalalgia, gastralgia, intercostal neuralgia, supraorbital neuralgia, etc.; others again complain of palpitation, asthma, pain in the left side, and particularly violent pains in the legs, which are often œdematous. With regard to the digestive organs the subjective symptoms show nothing characteristic: anorexia, fullness after eating, eructations, constipation. Objectively we not rarely find anæmic heart murmurs and irregular, often merely intermitting, hypokinetic heart action. The spleen, as a rule, is enlarged and can be palpated as a hard tumor. The stomach, being slightly sensitive, shows the following: Among the fifteen cases examined by me, the secretion of hydrochloric acid was diminished in nine; nearly the same number of cases showed atonic muscular weakness of the stomach walls; in one there was a remarkable untimely occurrence of lactic acid. In most cases the motility was reduced. The remaining six cases showed various inconstant findings. Plasmodia I could demonstrate in only four cases.

It will be good practice in cases where the dyspeptic symptoms are more or less independent of the ingestion of food, show a certain regularity in their occurrence, and are absent at some hours of the day, to suspect the influence of malaria as the cause and to examine for plasmodia, or to prescribe tentatively large doses of quinine.

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PERICHONDRITIS OF THE LARYNGEAL CARTILAGES.*

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Perichondritis of the laryngeal cartilages as a primary disease is a very rare affection, the condition, as it is usually found, being secondary to a morbid process in the perichondrium. It is not the purpose of this paper, however, to consider at length those cases due to tubercular or cancerous deposit, but rather to confine our paper to the subject in hand as a primary disease.

The ætiology of this class of cases is always more or less obscure; we have it following any debilitating disease without any apparent cause, especially typhoid fever, pneumonia, and diphtheria. Bosworth (*Diseases of the Throat and Nose*) reports thirty-three cases collated by him, two having occurred in his own practice. Of these thirty-three, nine are given as idiopathic, nine as syphilitic, eleven followed typhoid fever, one followed diphtheria, one was traumatic, and two were probably due to lordosis.

Von Ziemssen (*Cyclopædia of the Practice of Medicine*, vol. vii) mentions a case caused by the frequent introduction of an œsophageal bougie, the cricoid being the seat of the trouble.

As is usual in the more grave of our throat troubles, men are more often affected than women.

Thyreoid involvement alone offers the best chance for recovery; the arytænoid cases are less fatal than the cricoid; but the cases where both the cricoid and the arytænoid are involved promise least of any, excepting, of course, where all the group are involved.

The perichondrium, being a firm fibrinous membrane, is usually able to withstand the ordinary inflammations of this region; but when suppuration once begins beneath it, this same density prevents easy evacuation of the pus, and we have it burrowing along between the cartilage and its covering, until, if evacuation is still retarded, the circulation of the cartilage is interfered with, necrosis of the cartilage supervenes, and, if the pus still does not find a vent, the cartilage may be entirely dissected loose.

When this stage is reached the swelling has become very marked, greatly interfering with all the functions of the part. If spontaneous evacuation occurs, or if free incision into the pus cavity is made, the sequestrum may come away with the first rush of pus. It is seldom that this occurs, however, the cartilage usually coming away in pieces, and then only after weeks of continued suppuration.

If free and thorough evacuation of all purulent material and necrotic tissue is made at once, the process of repair may be rapid. When the sequestrum or parts of the sequestrum remain behind, or when the necrosis has only affected one part of the cartilage, and the same is attached and intact throughout the remainder of its surface, then a profuse, long-continued suppuration sets in; the discharge is constant; cough becomes more troublesome, while the suffering from dyspnœa and dysphagia is lessened; the general health becomes impaired and further embarrasses the process of repair; if operative measures are not employed now, the necrotic tissue removed either through the cloaca or by thyreotomy, the chances for recovery become very small.

Œdema may suddenly arise, the proliferation of granulating connective tissue around the fistulous opening may become so extensive as to interfere with respiration, and in either case tracheotomy is the only procedure that will give relief; the perichondrium and adjacent structures undergo a callous thickening, which seriously interferes with what motion remains in the articulations.

The functional disability, which is first and last a prominent symptom in all forms of this disease, involves phonation, deglutition, and respiration, more or less, according to the cartilage or cartilages affected.

It is not probable that laryngeal perichondritis, as such, is ever diagnosticated in the beginning.

Pain, cough, hoarseness, lymphatic involvement, dyspnœa, and dysphagia are so often seen as symptoms of more trifling affections of the throat, that, even did the laryngeal image differ, one is liable to be mistaken.

The early structural change under inspection has no distinctive pathognomonic appearance; indeed, after the presence of suppuration beneath the perichondrium, the laryngeal image, when taken alone, could not be differentiated from ordinary submucous abscess.

The history of the case, the external objective and subjective symptoms, together with careful laryngoscopical examination with a probe after the use of cocaine, may determine the exact state of affairs; but it is only where we have a well-advanced case, with thrown-off cartilage, or open fistula in which we can use a probe, that the absolute extent and true state can be determined.

The laryngeal image differs and varies greatly according to the cartilage and extent of destruction.

If the arytænoid cartilage alone is the seat of the disease, it gives rise to a unilateral tumor, pear shaped, and encroaching upon both air and food tracts. Deglutition is interfered with greatly on account of the improper closure of the glottis, pain, and swelling. Dyspnœa is seldom an urgent symptom in this form, unless the tumor is accompanied by œdema.

The crico-arytænoid articulation becomes the seat of an effusion resulting in ankylosis, which abolishes the mobility of the cord upon that side. The voice becomes low and hoarse, but not necessarily lost.

The course of the disease in this is the same as in the other cartilages, except that, the fistulous opening once established, the final exfoliation occurs in a much shorter time.

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* Read before the Canton Galen Club, Canton, Ohio, March 4, 1895.

I have a case of arytenoid perichondritis under observation at this time in which there has been no evacuation. Whether the disease is tubercular or not remains to be seen. With the exception of this case I have never seen a case of arytænoid perichondritis which was not tubercular. In fact we are always suspicious of tubercular deposit when the enlarged pear-shaped arytænoid is found.

Tubercular ulcers upon the posterior wall of the larynx are especially liable to be associated with chondritis of the arytænoids. They are found most frequently as single ulcers upon the vocal process, anterior side of the arytænoid, and cartilage of Santorini, these ulcers penetrating the perichondrium and laying bare the cartilage. In contrast to their depth they are often very small in diameter and can be easily overlooked. As von Ziemssen says, "in making a post-mortem one needs a probe in order to demonstrate the necrosis of the cartilage."

If either arytænoid cartilage has been entirely necrosed and thrown off, the soft parts, with Santorini's cartilage (see cut), sink in, and if the infiltration following the inflammatory process is not too extensive, the median line of the larynx assumes a position near the diseased side.

The thyreoid cartilage is much more abundantly supplied with blood-vessels than the other cartilages of this group, and hence a thyreoid perichondritis is not so liable to result in such extensive destruction of tissue as is observed in the other cartilages. It is when the disease is met with in this cartilage that the external symptoms are most marked. The swelling obliterates the uniformity of the pomum Adami on one or both sides, and fluctuation may become apparent. If the abscess opens externally we may determine the extent of necrosis by the insertion of a probe.

In one case in my own practice (No. III) the abscess evidently burrowed downward, and opened immediately above the sterno-clavicular articulation, establishing a fistula which remained open for years. This case was not seen until the fistula was established.

In this case true laryngeal fistula was also present, as could be demonstrated with a probe in position, the same being easily seen in the laryngoscopic mirror. (See sketch, Case III.) Schrotter mentions a similar case as occurring in his own practice (von Ziemssen, vol. vii).

Perichondritis of the cricoid cartilage occurs generally on the plate, and when occurring with tubercular laryngitis will be found associated with arytænoid complications. The rule is for the arytænoid to become affected first, the crico-arytænoid articulation becomes involved, is either lost entirely or is ankylosed, and the morbid process begins in the cricoid.

The symptoms are similar to those mentioned as occurring in thyreoid and arytænoid cases, but laryngeal stenosis in this form becomes most aggravated.

This is caused primarily by the protuberance of the abscess upon the posterior wall, which protuberance may in a few days reach such a degree as to cause alarming symptoms, and secondarily it is a favorite site for the proliferation of callous and connective-tissue granulations.

The vocal cord becomes displaced upon the affected side toward the median line, and this, together with destruction or paralysis of the posterior crico-arytænoid muscle, results in very marked dyspnœa.

The ultimate result when all the cartilages are affected is death. In those cases where only one or possibly two of the cartilages are complicated the case runs a somewhat protracted course, with no special tendency toward a fatal termination other than the constant danger from laryngeal stenosis, in which tracheotomy may be required, and the gradual impairment of the general health.

The prognosis must always be guarded. The mildest case may extend notwithstanding all we can do, and the probable impairment to the voice should be explained.

The treatment of the acute stage of the disease requires active general and local antiphlogistic measures: ice pack externally, administration of pellets of ice, leeching or cupping, cocaine to larynx, cathartics, and, as Bosworth suggests, the early and continued use of iodide of potassium. Later the measures must be directed to the relief of the dyspnœa, the management of the abscess and sequestrum, if any, and finally the relief of the resulting or threatened stenosis from cicatrix. When tracheotomy becomes necessary the high operation should be done in preference to the low, as this gives local bloodletting and furnishes an opening where possibly something may be done with the purulent accumulation or sequestrum.

The sequestrum should be removed as early as possible, as its presence undoubtedly stimulates the formation of connective tissue proliferation and increase of stenosis. The severing of adhesions by the intralaryngeal knife or dilator, the removal of proliferations or other obstructive formations by the double-cutting curette, snare, or galvano-cautery, are indications for certain cases.

Without the laryngoscope we can do nothing.

In extensive cases the patience of the patients will become exhausted, and they go from one throat specialist to another without the desired relief until finally death gives them their release.

I must not close this paper without giving credit to the excellent articles upon the rare affection by von Ziemssen and Bosworth, from whose works I have freely quoted.

The following cases occurring in my own practice may be of interest:

Case I.—On March 12, 1894, John B., aged fourteen years, presented himself with a very small fistulous opening upon the pomum Adami. Three years before he had had typhoid fever, and this discharge was first noticed about six weeks after he was up and about. The fistula was situated in the center of a slightly raised nodule, was painful, slightly inflamed, would close for a day or two and then break out again. Had never been much better, and, if any change during past year, was a little worse. Discharge was muco-purulent. No intralaryngeal morbid process could be demonstrated. All kinds of applications had been made, and he had undergone one operation without benefit.

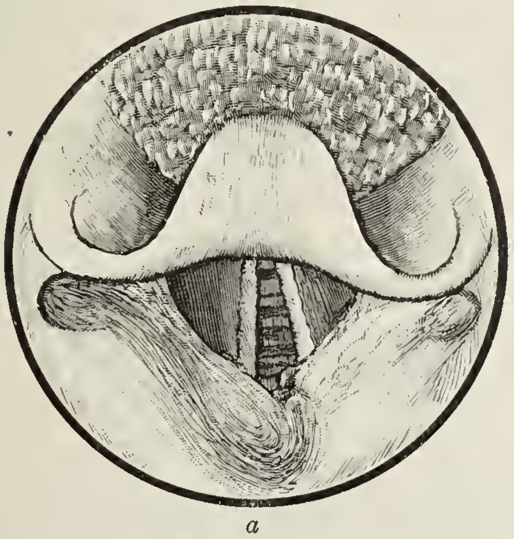
Probing with a delicate probe proved the fistula to be of thyreoid origin. We decided to operate. On March 20th, assisted by Dr. Marchand, we dissected down, and found, as supposed, that the fistula did spring from the thyreoid cartilage. In fact it appeared to come directly through it. The opening was extremely small, and evidently the necrotic condition was on the other side, with this fistula leading through the cartilage. The fistula appeared to end at a point corresponding with the perichondrium of the inner side—at least we could not follow it. Fearing the result of extending our operative measures would be worse than the original trouble, we closed the wound, removing an elliptical piece down to the perichondrium. Twelve days following the fistula again opened through the site of our wound, discharged about as before, and settled down to business again. We next cauterized the base thoroughly, and again with no result. He now drifted out of my hands, and I next heard of him being under treatment of one of my quack competitors, who guaranteed to cure him. That was eight months ago, and I occasionally meet him on the street yet with a bandage around his neck.

This was comparatively a trifling case, and yet demonstrates how important it is to get at the seat of the disease.

Case II.—Mrs. K., of Washington, D. C., consulted me October 27, 1894, having been troubled three years with extreme hoarseness, and at times complete aphonia. Has occasionally suffered with pain over larynx ever since trouble began. Cough was troublesome, but not constantly so until four months ago. Coughed almost constantly since, except when under an opiate. Expectorated considerable heavy material a year ago, and has been expectorating since cough became so bad.

Deglutition but slightly interfered with. No dyspnœa if she keeps quiet; marked upon exertion. Lost sixteen pounds in weight; feels weak; no fever. Pulse always above 85, averages 90. Had complete aphonia a year and a half ago which lasted six months. This cleared up suddenly after expectorating considerable purulent material, "in which were noticed small pieces of tough, flat tissue," evidently cartilage. Has been unable to articulate now for six months. Has at several different times suffered from dyspnœa.

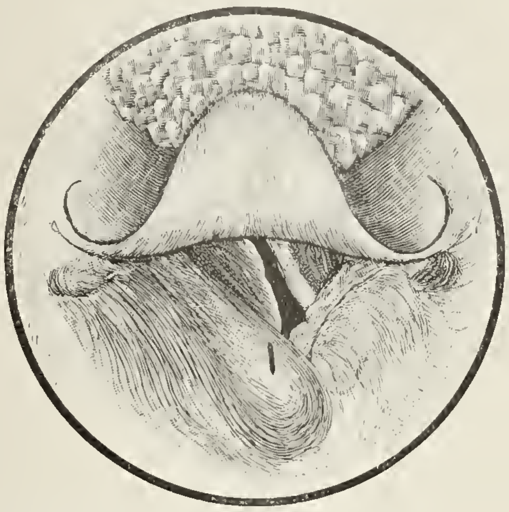
By laryngoscopical examination find granular pharyngitis, marked thickening of the right arytænoid (see sketch *a*, Case II), right vocal cord crowded to median line, the cord being congested and swollen. Left arytænoid showed evidence of suppuration with elimination of part or whole of the cartilage, the soft parts being sunk in, leaving a marked depression. This evidently was the point from which suppuration had occurred a year ago, and after the rupture of which abscess she regained her voice.


a

Case II.—Mrs. K. When first seen.

She had been treated for "nervous cough," "bronchitis," "catarrh," and other equally indefinite diseases, without benefit.

The larynx was so distorted and the chink of the glottis so much encroached upon that no view could be had of the subvocal region. No fluctuation could at that time be demonstrated. She was put upon treatment as outlined above and the arytænoid closely watched. At the end of a month fluctuation was apparent (see sketch *b*, Case II), and the abscess was opened with the intralaryngeal knife. This gave immediate relief from the slight dyspnœa which had been present; the cough changed in character and ceased to be so distressing. No necrosed cartilage came away.


b

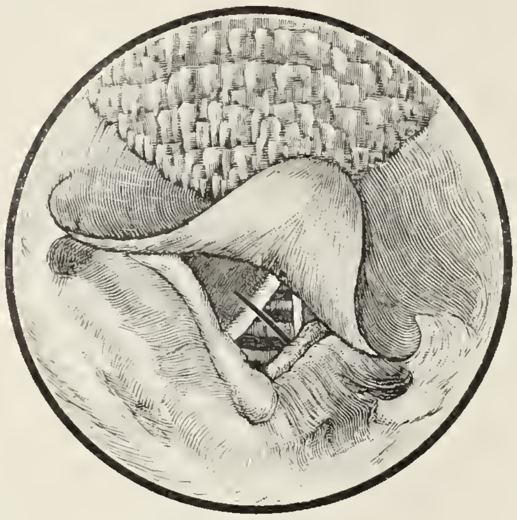
Case II.—Mrs. K. Fluctuation present. Dark line on arytænoid shows position of incision made.

Her voice now improved, and some days she could speak quite distinctly. The swelling gradually subsided, and with it the distortion of the larynx, allowing a better view of the subglottic region. No morbid process found there.

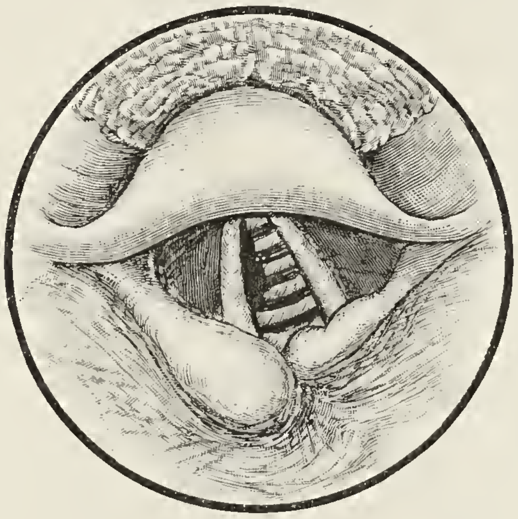
The last time I saw her—February 2 (see sketch *c*, Case II) —the fistula was still open, the discharge being very slight; still a watery, purulent accumulation. She coughed but little, slept well, gained in weight, and on the 6th returned to Washington. She was greatly improved, according to her own statement, but, of course, it is probable that the necrotic change going on then will before long assume some new phase and again require attention. A radical operation might be best, but in her present comfortable condition she will not listen to it. It will eventually kill her.

Case III.—Ray A., Canton, aged eight years, June 6, 1894. This case was brought to me on account of a fistulous opening immediately above the left sterno-clavicular articulation. When two years of age he had suffered with a severe attack of diphtheria. Is a large, well-developed boy, very bright, but has never been able to articulate so that he could be understood except by his mother. Fistulous opening of about the size of pinhead, and situated in center of raised indurated ring. A small flexible whalebone bougie could be easily inserted five inches, always following the same course and leading directly to the cricoid cartilage. About half a drachm of purulent watery fluid could be pressed out. The father stated that the opening had established itself about three months after he recovered from the diphtheria, and had discharged every day or two since. When it first opened it discharged very freely for a few weeks. No suspicion had ever been entertained that there was any connection between this opening and his laryngeal difficulty. Repeated attempts had to be made before any satisfactory view of the larynx could be obtained. The epiglottis pointed to the left instead of perpendicular, and the whole larynx seemed twisted in that direction. But one cord could be seen—the right—this looking normal in color and size. The neck being fat it was difficult to outline the parts, but the left cricoid appeared sunken in and the resiliency was lacking. One interesting point was that the probe could be seen in the larynx when in position through the fistula (see sketch, Case III). Nothing was attempted in this case. The boy was well, strong and fat.

coughed but little, and surgical interference might only make matters worse. I was unable to satisfy myself whether his inability to articulate was due to structural change in the larynx or to paresis. The crico-thyreoid muscle on the left side was evidently affected, and how many more I could not say. He could make plenty of noise with the larynx, and I am inclined to believe that the inability to adjust the parts was due to loss of structure.


Case III.—R. A. Probe in position through fistula. Entire larynx twisted to the left.

Case IV.—Mrs. McK., Bowerston, Ohio, aged fifty-four years, consulted me on July 31, 1894. Very hoarse for three months; dyspnœa upon exertion; no dysphagia; coughs but little; temperature normal; pulse, 124. Thinks she "had night sweats" a year ago, and had some fever about the same time every day. No tubercular history in family. Been treated for "catarrh of the windpipe" without any relief. Present weight, one hundred and twenty-two pounds; former weight, one hundred and forty pounds. Feels weak, and has a sense of oppression or fear of something, knows not what. Can not speak above a whisper, and it is tiresome to do even that. External swelling marked over right side of larynx. Tender upon pressure over cricoid cartilage.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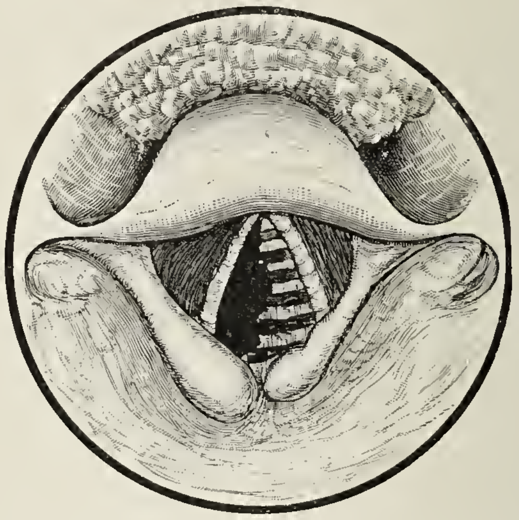
Case IV.—Mrs. McK. When first examined.

The right arytænoid was enlarged and inflamed (see sketch 1, Case IV), right cord greatly swollen, and could not be outlined from the false band. The whole right side of the larynx appeared raised up, and the left correspondingly depressed. Below the cords appeared a large, rough mass, which filled up about half the chink of the glottis. Under a probe this was firm and unyielding, while fluctuation was found in the right arytænoid. The left side of the larynx was not affected. On August 9th, after repeatedly manipulating the larynx with the probe, the larynx was cocained and the abscess opened. The voice improved but little. The galvano-cautery was applied to the mass below the cords with considerable benefit. I saw her constantly until September 20th. The swelling subsided over the arytænoid, the small fistula remained open, she breathed better, the voice was stronger, she gained in weight, and was better in every way. On December 7th (see sketch 2, Case IV) she returned, still feeling very well, except that her voice was very hoarse. She could, however, talk out loud. She returned this time to see if something could be done for the voice. The mass of granulation tissue immediately below the right cord was evidently the cause of this hoarseness, and I advised an intralaryngeal operation. On December 7th I removed the greater part of this mass with Krause's double-cutting punch. At two subsequent sittings the remainder was removed. (See sketch 3, Case IV.)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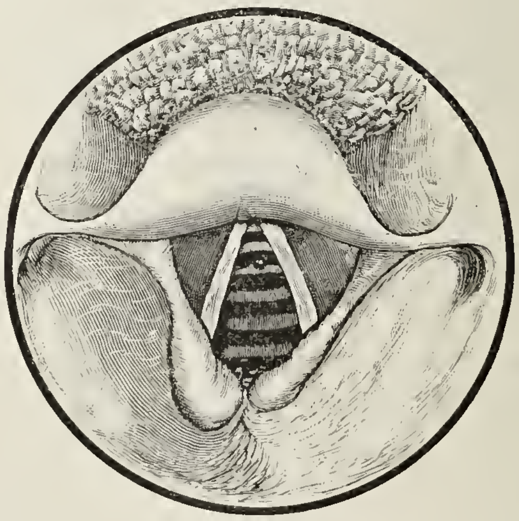
Case IV.—After evacuation of pus. Better view of sublaryngeal growth.

While questioning her this time I found her throat trouble dated back several years instead of three months. The proliferation removed was evidently a product from a former suppuration. I gave my opinion, at first, that the case was tubercular, but since opening the abscess and getting tissue away I have repeatedly examined for tubercle bacilli and found none.

She returned home a few days after the last operation, coughed considerably, but gradually improved.

On February 14th I was called to Bowerston to see her. She had had a slight attack of *grippe*, and was afraid she was going to have trouble in breathing.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Case IV.—When last seen. Sublaryngeal growth removed.

She was better when I got there, and said she had been able to talk with her neighbor across the street ten days before, and as she could not do so now she wanted me to see her. I found the throat in comparatively good shape, and since hear that she is all right again. (See sketch 3, Case IV.)

Here is a case where the very worst was threatened; where no hope was given either patient or husband; where we thought tracheotomy might be necessary any day, and by intralaryngeal operation she has regained her voice, coughs very little, sleeps all night, eats easily, has increased in weight from one hundred and twenty-two to one hundred and forty-eight pounds, is comfortable, and evidently has several years to live yet. I do not allege a cure, but am glad I can report the best results in my worst case.

ELECTRICITY IN MEDICINE

FROM A MODERN STANDPOINT.*

By WILLIAM JAMES MORTON, M. D.,
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AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

(*Concluded from page 492.*)

ELECTROTHERAPEUTICS.

THE brief time of ten minutes allotted to the reading of papers before you necessarily confines my presentation of this branch of our subject within narrow limits.

He who would appeal to electricity as a therapeutic aid in medicine should build upon broad principles and not upon narrow ones. Two such principles occur to me:

1. The broadest one which I am able to formulate, and which I would in fact suggest for a *definition of electrotherapeutics*, in a biologic sense, is that electric energy applied to the vital energy of living organisms undergoes a transformation into the energies characteristic of such organisms; the energy termed vital is modified by the energy known as electrical; it is a question of electrical energy *versus* biological energy. Of the vital energy we may say that its beginnings are life; its normal progress is health; its perversions are disease; its cessation is death. At some point in this gradient, either as a somatic aggregate or as a cellular unit, the applied electric energy of electrotherapeutics is transformed into some form of vital energy—namely, transformed into some function of protoplasm and its modifications.

The transformation is into chemical energy when electrolysis is effected, into mechanical energy when tissue elements are distorted or strained or when cataphoresis is established, into neural energy when the nerve elements are excited, into muscular energy when the muscle is caused to contract, into secretory and excretory energy when glands and other organs are excited, and into nutritional energy when, by aid probably of the trophic nerves, the tissue combustions are accelerated. The fundamental definition of electrotherapeutics may then be said to be the transformation, by the law of conservation of energies, of electric energy into the energy peculiar to individual vital cells.

2. A second broad principle is that electricity, to be worked with successfully, must be regarded not as an entity, like a drug, but from the standpoint of a considerable number of powers for action, or "properties of the current," as they are termed. The physician should select some one of these distinctive properties of the current with which to combat a given disease or morbid condition.

Retaining, to avoid confusion, the familiar medical classification of galvanic, faradaic, and franklinic currents, their properties useful in disease are: A. Physical: (1) Heat, (2) light, (3) electromagnetic, (4) inductive, (5) electrolytic, (6) cataphoric. B. Physiological: (7) Contraction of protoplasm, (8) stimulation of nerve and muscle, (9) fatigue of nerve and muscle (anæsthetic and analgetic effects), (10) electrotonus, (11) nutritional effects.

In this enumeration the physical properties of the current are mainly those of the continuous or galvanic current, while the physiological properties, with the exception of electrotonus, are common to both galvanic, faradaic, and franklinic currents, mainly by reason of interruptions in current flow.

1. Heat is employed indirectly to render platinum loops and knives incandescent, and enters, in this sense, into electro-surgery.

The heat produced by the passage of a medical electric current through the body is inappreciable. Intermitting and oscillatory currents cause modifications of bodily temperature by affecting the thermic centers, by increasing respiratory combustions of the tissues, or by vaso-motor effects.

2. Light also is used mainly as an indirect effect to illuminate cavities of the body and to transillumine tissues. By means of transillumination important aid in diagnosis is rendered, for foreign bodies, necrosed tissue, and pus do not transillumine, but appear as dark areas in the midst of the beautiful waxen, rosy glow of the transillumined tissue. Pus in the antrum of Highmore may readily be detected, as well also as necrosis and pus at the roots of teeth. I have frequently transillumined the lower abdomen by introducing a specially constructed electric lamp into the vagina in the attempt to aid in the diagnosis and location of pus and tumors. Dr. Einhorn, of New York city, ascertains the size of the stomach and its location, as well as the probable presence of ulcers and cancer, by means of transillumination of this cavity. Powerful light radiation alone seems to possess a yet unexplained action upon the skin and mucous membranes and upon neuralgias.

3. *Magnetism.*—At one time it was believed that magnetism produced an effect upon living organisms, and magnets were applied in various diseases.

There is at present at Sandy Hook, New York Bay, the largest and strongest magnet in the world, constructed by Lieutenant W. R. King, of the United States Navy, from a large iron cannon wound with ten miles of copper wire. It is stated that this electromagnet, with about twenty-five ampères of current traversing the wire, is capable of sustaining twenty-five tons of weight, and yet, in spite of this mighty force, no effect whatever can be perceived by a person submitted to its influence. Commenting upon the published results of Kennelly and Peterson, who conducted similar experiments by aid of powerful electromagnets in Mr. Edison's laboratory, I called attention to the fact that such experiments were not conclusive until the polarity of the magnets should be rapidly alternated.

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* Contribution to discussion before the Medical Society of the State of New York at its eighty-ninth annual meeting.

4. *Induction Effects.*—These, no doubt, take place in the use of alternating currents like the faradaic. With currents of high frequency and high potential such currents render lamps put in the circuit of the patient's body incandescent. They, of course, are of the same nature as the inducing current, and only serve to spread the original effect over greater areas of tissue.

5. *Electrolysis* is the most important property of the constant or galvanic current. It takes place only at the expense of the tissue, which undergoes a chemical decomposition whether the current strength be great or little. If the current strength be sufficient to cause an actual and final disruption of the atoms of molecules, which, as oxygen and hydrogen and various subsidiary chemical products—acids and alkalies—collect at the electrodes (generally metallic needles), we have an instance of visible, polar, or surgical electrolysis. If the molecules are not disrupted we have the ordinary medical electrolysis.

As an electrolyte, the human body may be regarded as a two-per-cent. solution of common salt, and since current conduction is due to the salts of the body held in solution and constituting, though in small amount, a most essential element of tissue, it is plain, aside from laboratory and clinical experience, that from a physical point of view alone electrolysis profoundly alters tissue constituents and structure. Even a few milliampères of current conducted electrolytically by the solutions of inorganic salts, decomposing and diminishing them in amount, may produce profound effects, for the function of the tissue depends upon its physical integrity, and it is its physical integrity which suffers by the passage of the current. This action probably explains the effect of electricity in setting up a retrograde change in the growth of many tumors, especially fibroids in their early stages, and is also one reason for the absorption of inflammatory exudates wherever their locality.

In connection with these views it must be always borne in mind that the modern view of electrolysis holds that its activity is existent at every part of the circuit and not alone in the polar regions.

In general, I regard the property of electrolysis as one which must be employed with great discrimination and caution. Illustrative of this position, I may cite an experiment by G. Weiss, who submitted one leg of a healthy frog to a few milliampères of current for several minutes and placed the frog back in the aquarium. At the end of a week the frog's legs were tested to determine their relative excitability. The leg not submitted to the currents wa from ten to twenty times more easily excited than the electrolyzed leg. This latter leg was amputated, and upon microscopical examination it was revealed that marked structural changes had been produced in the muscle fibers. Experiments of this nature demonstrate that the continuous current reduces nerve and muscle excitability by setting up structural changes.

The question at once arises, In what class of cases do we desire this effect?

In spinal-cord diseases, in neuritis, and in all instances where regeneration of nerve and muscle tissue, or, indeed, of any tissue, or the resumption of functional integrity is to be promoted, I believe that the galvanic current, as commonly employed—namely, strong currents—retards recovery.

My only reservation in making this statement is that if we knew which pole to use it is possible that the case may turn out to be different, for there is some reason to believe, as has been pointed out in the section upon electrophysiology, that the negative pole may retard destructive and retrograde and catabolic events in tissue, while the positive pole may accelerate them. This view is still *sub judice.*

Certain it is that there is a growing feeling in favor of the use of mild (one to five milliampères) galvanic currents in the class of cases alluded to, where reparation and not retrogression is desired.

On the other hand, retardation of the excitability and of the growth of tissue and reabsorption of exudates may be desired. This I believe to be the practical function of the electrolytic or galvanic current, and especially of the negative pole of this current. As a result of long experience, I have learned and have taught for many years that the negative pole is emphatically the right pole and the best treatment to apply in all cases of chronic inflammation so called—that is to say, in all cases where from causes like traumatism, infectious processes, rheumatism, and so forth, a hyperplasia of connective tissue and an impaired local nutrition exist. In such cases, be the resulting chronic inflammatory process within the pelvis, within organs, in joints, nervous structure, muscles, or skin, wherever newly formed fibrous tissue may have located itself, the negative pole, and it alone, exerts what may be termed a reabsorptive action.

Under this action I have seen a youth's neck, twisted inflexibly to one side and held there by exudates succeeding to operation and septicism, become perfectly normal; have seen the contents of female pelves, rigid from similar exudates, soften and become movable; have seen chronic joints, fixed by fibrous ankylosis, resume their flexibility, and in cases without number witnessed the resolution and absorption effects of the negative pole.

I will say further, as a matter of personal opinion, that the negative pole is nearly always indicated, and that, with but few exceptions, I should relegate the positive pole to the position of the indifferent or dispersing electrode.

In this connection I will pass about for inspection a delicate metallic cloth which may be cut into bandages, etc., and wrapped about joints or uneven surfaces upon the top of absorbent cotton or sponges or toweling, thus greatly facilitating the even distribution of current.

6. *Cataphoresis.*—Cataphoresis means the movement of fluids in tissue by the directive action of the constant current; this movement is, in general, from the positive and toward and to the negative pole. When the fluid to be moved is a solution of some medicine, applied, as a rule, to the positive pole and forming electrolytic continuity with skin, mucous membrane, or deeper tissues, I have termed the procedure cataphoric medication.

Cataphoresis, the movement of the fluids of tissues, is an inevitable associate with electrolysis. By it fluids accumulate at the region of the negative pole and abandon the positive pole. Thus, the negative pole is said to be a "wet" and the positive pole a "dry" pole; the action at the negative is "liquefying," at the positive pole desiccating. These distinctions are exemplified in a striking manner in the Apostoli treatments, where the positive pole is used to combat hæmorrhagic conditions, the negative to promote retrogression and absorption. This action is most marked in the use of bare electrodes, like needles and sounds, but is not absent in percutaneous treatments with sponge electrodes. It has an important bearing in promoting, by liquefaction, the absorption of fibrous tissue exudates.

Cataphoric medication has opened out a vast and practical field of new work in electrotherapeutics. The medicine to be introduced through the skin of a patient may be in solution in a "galvanic bath"; the solution may be placed within the uterine, vaginal, rectal, buccal, or other cavities, within which at the same time is placed the positive electrode; it may be injected into tissue and diffused by a positive pole, needle, or cannula; it may be simply placed upon a piece of blotting paper with a flat carbon electrode of positive polarity resting upon it; in all instances, with a moderate flow of current, within a few moments medicines like iodide of potassium, iron, quinine, strychnine, mercury, and many others may be detected, upon examination, in the urine. Practical applications of this principle are the use of mercury in syphilis, of local remedies like iodine in goître and other affections, of lithia salts in rheumatic joints, and perhaps the most practical of all, the production of a most reliable local anæsthesia by means of a solution of hydrochloride of cocaine. There are few minor operations in surgery that I do not now perform under electro-cocaine local anæsthesia.

Cataphoric Medication from Soluble Electrodes; "Metallic Electrolysis."—The principle of electric diffusion, combined with the chemical decomposition of the electrode and of the tissue with which it is in contact, has furnished to us, only most recently, a new method of procedure, than which there are few more practical, more efficacious, and therefore more important, in the entire range of electrotherapeutics. I refer to a procedure inaugurated by Dr. Gautier, of Paris, and commonly termed metallic electrolysis. Its essential feature is that an electrode, as, for instance, a needle, a sound, a probe, a bulb or any other, is manufactured out of a metal—say copper or zinc—which is vigorously attacked and oxidized by the current at the positive pole, and, what is more important, the secondary salt formed, an oxychloride of the metal, is driven or diffused by the action of the current into the tissue. In this case, unlike topical applications of washes, sprays or injections, the medication is not alone applied to diseased surface or tissue, but it is also driven into it, and may there act as a microbicide or a denutrient. Early recognizing the value of this procedure, I at once, upon its publication in this country, established its use and greatly extended its scope by inventing new instruments, methods, and applications in my clinic at the New York Post-graduate School and Hospital.

Its gynæcological applications will be referred to by the next speaker.

In trachoma, by a method established by the writer, no better treatment exists; with from one to two milliampères of current a copper bulb electrode of positive polarity is slowly passed over the conjunctival surfaces; in a few days the sago-like granulations soften, and with successive treatments disappear together with the other distressing symptoms.

In chronic nasal and post-nasal catarrh I have reported cases of cure within from three to six weeks. To treat these cases the parts are first cocainized by a spray and then a bulb of copper, fitting upon a properly curved handle, is passed by the mouth to the post-nasal areas, until as much as possible of the tissue is saturated with the green oxychloride of copper dissolved by the action of the current off of the electrode; a current strength of from five to eight milliampères is employed, the indifferent or negative electrode being placed upon the back of the patient's neck. Copper sounds and probes, properly protected, suffice to treat, in the same manner, the anterior nasal passages and recesses. A similar technique is applicable, with admirable results, in urethritis of a subacute or chronic type; possibly in an acute stage, but of this stage I have had no experience. The electrode, a proper-sized copper bulb, is withdrawn slowly, being always kept in motion, to avoid any chance of adhesion, and not to exceed two milliampères of current is used. Should a slight adhesion occur, the polarity may be reversed a few seconds to loosen it. In all instances the copper instruments must be brightly polished with fine emery paper before use; after use they will be found to be deepened in color and corroded by the action of the current and to have lost weight.

I have also treated in this manner, and with a success unattainable by other methods, dermoid cysts, follicular tonsillitis, diphtheritic patches, vascular tumors, nævi, lupus, epithelioma, pus sinuses, tubercular deposits, sycosis parasitica, and parasitic diseases, as well as many other diseases not here enumerated.

The simplicity of this method is readily realized, particularly in the use of copper and zinc needles; and with a galvanic battery, a rheostat, and a milliampèremeter in hand, the practitioner may, if he pleases, simply fashion his own electrodes out of a piece of copper wire, by aid of a file and emery paper, or bend his wire in loops for probes or sounds, and be prepared to perform this far-reaching work of metallic electrolysis.

In a publication read before the American Electrotherapeutic Association this fall, and about to be published in the *Journal of the National Association*, of Chicago, I have fully detailed the technique and details of this procedure. Papers also have been published by my clinical assistants detailing my work and instruments, and by Dr. Clarence C. Rice, of New York, describing the same.

The instruments may be obtained of the Galvano-Faradaic Company, 300 Fourth Avenue, New York City.

The physiological properties of currents—namely, contraction of protoplasm, stimulation of nerve and muscle, fatigue of nerve and muscle ("anæsthesia" and paresis), electrotonus, and nutritional effects—have been dealt with, so far as time has permitted, in the section upon electrophysiology, and are here referred to only in a therapeutic sense.

The application of these properties of currents to practice requires of the physician no more than that usual knowledge of physiology which he would bring to bear in the intelligent use of other therapeutic measures. It requires also some technical knowledge of apparatus.

We will refer briefly to a few salient points coming under this branch of our subject.

Electrotonus.—This property of nerve (and of muscle) of having its excitability lowered at the positive and heightened at the negative pole is one of the fundamental dicta of galvanic-current treatment. It has become classical to treat the pain of a neuralgia by the positive pole. If the nerve is superficial, the advice is good; if it is deep, the electrotonic effect is not easily obtained.

Excitation and Fatigue of Nerve and Muscle, mainly Faradization.—No electrotherapeutic procedure is better established than is the use of the faradaic current.

As now in use, it produces two effects—

a. Muscular contraction.

b. Sedation and numbness to pain (fine wire coil).

I should like to add, therapeutically, to these a third—namely,

c. A fatigue effect upon nerve and muscle.

Some three years ago, having occasion to treat a case of common orthopædic deformity where there existed a paralysis of one group of muscles and a spastic condition of the opposing group, it occurred to me, in place of cutting the tendons of the spastic group, to paralyze them for a time by the use of excessive faradization. The plan worked admirably, and the case, a most intractable one, got well. Arguing that, if faradization could exhaust nerve and muscle in this manner, in the numerous cases where it is commonly employed to treat paralysis it would easily exhaust the enfeebled muscle, I began to use milder currents and to use them intermittingly in order to afford the muscle time to rest and re-enforce itself. Confirming my results by others, I have since taught this method in my clinic.

Recently Dr. Xavier-François Debedat, of Bordeaux, has examined this question most exhaustively * by laboratory experiments upon healthy rabbits. The nutrition of the muscle is furnished by its blood supply; moderate contractions increase the intramuscular circulation, while severe contractions diminish it; the faradaic current is a sort of electric gymnastics—its action resembles ordinary exercise; moderate exercise of muscles by a faradaic current flowing in slow rhythm produces physiological hypertrophy or growth of the muscle; prolonged tetanization of the muscle by the faradaic current flowing in rapid vibration produces fatigue and atrophy of the muscle.

The rhythm adapted to produce the best result in the growth of the muscle is one which affords about the same duration for the excitation and for the period of repose; this is about thirty faradaic impulses per minute. I have devised a clock-work mechanism to secure this rhythm. It may be bought of the Kidder Manufacturing Co., of New York.

Consider for a moment how universal is the practice to treat paralyzed muscles, and those enfeebled by muscular atrophy, by simply subjecting them to the usual humming or singing rate of vibration of the ordinary induction coil. The usual advice is to keep up their nutrition pending a period when their innervation may become more or less reëstablished. This practice is wrong if carried out by tetanization of the muscle. For such cases, the rate of the duration of the flow of the current should be about thirty waves per minute, thus allowing time to each excited contraction to subside and for the muscle to recuperate between contractions, as is the case in ordinary exercise. Faradaic tetanization therefore, as now practiced, only further enfeebles and causes more atrophy of the paralyzed as well also as of the healthy muscle.

Nutritional Effects.—A strong continuous or galvanic current is, no doubt, a depressant to nutrition of tissue, local or general.

A mild interrupted galvanic current or a mild continuous galvanic current would appear to be stimulatory to nutrition.

A tetanizing faradaic current, as has just been noted, retards nutrition, while a slowly rhythmic current (thirty per second) improves nutrition.

The highest order of nutritional effects are obtained by the use of franklinism, particularly when, as in the static induced current, an alternating or oscillating character of discharge is made use of.

The franklinic current alters the pulse rate, modifies the body temperature, produces a general vaso-motor dilatation with a reaction of a feeling of warmth and well-being, and increases the organic combustions so that the amount of carbonic-acid gas and urea, together with other waste products, is largely augmented.

Its use is indicated particularly in cases of malnutrition. Classes of cases suited to this treatment are anæmia, chlorosis, neurasthenia, hypochondria, melancholia, gout, rheumatism, muscular rheumatism, neuralgia, neuritis, chronic synovitis, and chronic fibrous exudates about joints and tendons. Its local effects are often due to a deep molecular disturbance or perturbatory action set up *within* the tissue by the influence of the disruptive discharge or spark.

Time precludes any reference to electro-diagnosis.

In conclusion, I would say that I feel that I have scarcely touched upon the vast subject of electrotherapeutics, and that I trust that what I have said may at least have the merit of falling within the scope of the title of our discussion—namely, Electricity in Medicine from a Modern Standpoint.

Conclusions.—1. I would suggest as a definition of electrotherapeutics, in a biological sense, that it is the transformation (by the law of conservation of energies) of electric energy into the energy peculiar to vital cells.

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* See *Archives d'électricité médicale.* Par J. Bergonié. Bordeaux and Paris, February 15 and March 15, 1894.

2. Electricity in medicine must be regarded not as an entity, like a drug, but as having a variety of "properties," such as electrolysis, cataphoresis, contraction of protoplasm, etc., each of which properties may be employed, singly or combined, to combat given morbid conditions or diseases.

3. Of the galvanic current it may be concluded—

a. That strong currents depress nutrition of tissues and produce structural changes leading to physiological atrophy (twenty to a hundred milliampères).

b. That mild currents stimulate nutrition and produce physiological hypertrophy (one to eight milliampères).

c. That mild galvanic currents, pulsating or alternating, produce similar effects to mild continuous currents.

d. That the negative pole is specifically indicated in that large class of cases termed chronic inflammation where newly formed fibrous tissue or exudate occurs.

e. That upon the writer's theory—already accepted by several prominent physiologists—and observations, that catabolic or destructive events in tissue uniformly present the sign of negativity, that is to say, are at their origin electro-positive (resembling the zinc of a voltaic cell), the negative pole is indicated to arrest the catabolism, the positive to augment it.

f. That the positive pole is rarely indicated, and, if so at all, upon the basis of an electrotonic effect to produce sedation of neuralgic pain in superficial nerves.

4. Of the faradaic current it may be concluded—

a. That its main uses are to tetanize muscle and to cause sedation of pain.

b. That the tetanizing current as now employed to treat paralyzed muscles is injurious, since it enfeebles the muscle and causes atrophic structural changes.

c. That to strengthen or properly exercise a paralyzed muscle, a slow rhythm of the faradaic current—about thirty waves to the second—should be adopted.

d. That in some spastic conditions of muscles (due to paralysis of an opposing group) the strong tetanizing current may be used to advantage to overstimulate and thus to fatigue the muscle.

5. Of the franklinic current or statical electricity, it may be concluded that it is an adjunct of great efficiency in practice, since—

a. It evokes the usual nerve and muscle reactions.

b. It affords a most convenient means of stimulating the peripheral distribution of the nerves in the skin, producing counter-irritating, reflex, and other afferent impression effects.

c. It has a local perturbatory action (spark).

d. It produces profound alterations in the metabolism of the individual, increasing the natural waste products and diminishing the toxic or by-products. For this reason, it is specifically indicated in cases of malnutrition, whether local or general.

A Physician in Commercial Affairs.—We learn that Dr. Horace G. Norton has been elected president of the Trenton, N. J., Board of Trade, of which body he had before been vice-president.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, MAY 4, 1895.

BENJAMIN RUSH.

Never has there been a more honored name in American medicine than that of Benjamin Rush, the renowned physician and the patriot. For ten years or more the medical profession of the country, working by the instrumentality of an energetic committee of the American Medical Association, has been endeavoring to accumulate a fund sufficient to erect to his memory a monument second in splendor to none in the national capital. The fund has not been raised, but that is not because there has been any lack of reverence for Dr. Rush, for the undertaking has been commended in all quarters, but contributions have come in slowly. How will it be now when a stigma seems to have been attached to his reputation?

In the May number of the *Atlantic Monthly* there is a startling and humiliating article entitled Dr. Rush and General Washington, contributed by Mr. Paul Leicester Ford, which appears to show that Rush was one of the most venomous members of the cabal that sought to disgrace the incomparable Washington and oust him from the command of the Continental Army. The article is made up chiefly of four letters written by Dr. Rush to John Adams in October, 1777. In these letters Washington is depicted as an ignorant and unmanly blunderer, and the language is not that of a high-minded opponent, but rather that of a blind partisan. We know not when or how the letters were brought to light, but if John Adams went on receiving them, keeping their contents to himself, he must at least have tacitly shared the feeling expressed in them. How, then, must not the memory have tortured him when, years afterward, when he had succeeded to the presidency and war with France was thought to be unavoidable, he found himself compelled to have recourse to Washington? These were his words of instruction to the secretary of war, who was to bear to Mount Vernon Washington's commission as commander-in-chief of all the armies raised or to be raised: "The reasons and motives which prevailed with me to venture upon such a step as the nomination of this great and illustrious character, whose voluntary resignation alone occasioned my introduction to the office I now hold, were too numerous to be detailed in this letter, and are too obvious and important to escape the observation of any part of America or Europe. But, as it is a movement of great delicacy, it will require all your address to communicate the subject in a manner that shall be unoffensive to his feelings and consistent with all the respect that is due from me to him. If the general should decline the appointment, all the world will be silent and respectfully assent. If he should accept it, all the world, except the enemies of this country, will rejoice."

"That Rush was concerned in this cabal has often been denied," says Mr. Ford, "despite the fact that Washington ascribed to his pen the famous anonymous letter of the 12th of January, 1778, to Patrick Henry. But these denials cease to be of the slightest value in the face of this correspondence, which shows not merely that Rush was attempting to undermine his commander-in-chief at least three months before the anonymous letter was written, but even that he began his attacks before the convention of Saratoga, which, by its popularizing of Gates, gave such vitality to the conspiracy." Mr. Ford closes his article with this statement: "There exists today in Philadelphia a biography of Dr. Rush, in his own handwriting, in which frequent comparisons are drawn between himself and Washington, usually to the latter's disadvantage. Unfortunately, the publication or sight of it is prohibited, or still further light on this matter might be possible."

Mr. Ford is an experienced, cautious, and conscientious investigator of history, but we still venture to hope that the memory of Benjamin Rush, the great light of our profession in revolutionary times, will by some means be effectually purged of the stain put upon it by these letters. Unless it is, the proposed monument will be but a sorry affair, even if it is ever set up at all. Until his vindication is accomplished, we who have revered his memory can only grieve. We dare not question the authenticity of the letters to Adams, and of course nothing can expunge them, but possibly the autobiography alluded to by Mr. Ford contains some recantation or explanation that, if published, would restore our confidence in Rush's sense of justice. There ought to be some very good reason for suppressing a famous man's own story of his life.

Perhaps, indeed, Mr. Ford's object in publishing the letters —we take it for granted that they are now given to the public for the first time—was to induce the custodians of Rush's autobiography to publish it, or at least to allow it to be examined. Without knowing what it contains that might be held to need concealment in the interest of somebody's reputation we can not judge of the propriety of its suppression hitherto, but so great a reason seems now to have been furnished for terminating that concealment, inasmuch as it is Rush's own conduct that is called in question, that it appears hardly defensible to go on holding the manuscript back. Many of our ancestors were intemperate in their language in revolutionary times, and it may be that to cover up some extravagance or undue heat of statement is the reason why Rush's autobiography has been kept away from public scrutiny. No such consideration as that ought to weigh now against its publication, provided there is anything in it that can mitigate the discredit which otherwise must attach to Rush's memory.

The late Dr. Samuel D. Gross, in his biography of Rush in the *Lives of Eminent American Physicians and Surgeons*, defended Rush against censure in the matter of the cabal, saying it had never been proved that he was included in it, and that, even if it had, it would have been of no consequence, for he would have been in the company of honorable and patriotic men, and, moreover, Washington was not then tried and known as he was afterward. Certainly such considerations would make open opposition tolerable, but they can not palliate machination, and that is what the letters to Adams signify. We hope yet to see some evidence that Rush subsequently realized and admitted, if only to himself in his unpublished and suppressed autobiography, that his course toward Washington had at least been founded on misinformation or misapprehension.

MINOR PARAGRAPHS.

THE RETIREMENT OF DEPUTY SURGEON-GENERAL BILLINGS.

We learn that Deputy Surgeon-General John S. Billings, of the army, has requested that he be placed on the retired list; and that in October that distinguished officer will leave the Army Medical Museum, of which he is curator, and the Library of the Surgeon-General's Office, of which he is librarian, and these magnificent institutions, that have been made what they are largely by his ability and zeal, will know him no longer. Thus goes the last of the trio, Woodward, Otis, and Billings, that gave the army medical corps worldwide reputation.

Before the date he has selected for his retirement he hopes to complete his work on the final volume of the *Index-Catalogue*, a work that has made the medical profession of the world debtors to the United States Government, to the Army Medical Department, and, last and by no means least, to John Shaw Billings. In the *British Medical Journal* for April 20th Mr. James Blake Bailey, the librarian of the Royal College of Surgeons of England, pays tribute to Dr. Billings by advising librarians and authors to adopt as standard abbreviations those used by Dr. Billings in the *Index-Catalogue of the Surgeon-General's Library*. The system, he says, "was well thought out and has thoroughly stood the test of use." A catalogue of the museum also has been completed under Dr. Billings's direction, and we hope it may soon be published.

In seeking official retirement Dr. Billings does not propose to give up work, as he has accepted the chair of hygiene in the University of Pennsylvania, and his energy will be likely to find congenial employment in the duties connected with it.

THE *ARCHIVES OF PÆDIATRICS.*

In the May number of this excellent journal, the first issued under Dr. Crandall's editorship, we find a department of editorial articles. The leading article is on The Progress of the Infectious Diseases; it is an interesting one, mainly commenting on the health of the State of New York as shown by the mortality returns for the year 1894. The addition of editorials to the *Archives* seems to us a judicious move.

A CHARGE OF PERJURY AGAINST A NAVAL SURGEON.

It is reported that Dr. Edward Kershner, a high officer of the medical corps of the navy, is to be court-martialed on two charges. The first charge seems to amount only to that of a violation of regulations, perhaps a venial one; the second, however, is that of perjury in having sworn that he had not done what is charged in the first. Dr. Kershner is an officer of long and honorable service, and we hope that he will be cleared of the charges; we should certainly not expect that the unfortunate coolness that has prevailed for years between the line and the staff of the navy would prejudice any of the members of the court. There must be some misunderstanding in the matter; we can not believe that Dr. Kershner has knowingly perjured himself.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending April 30, 1895:

DISEASES.	Week ending Apr. 23.		Week ending Apr. 30.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever...............	7	5	4	1
Scarlet fever...............	97	8	117	12
Cerebro-spinal meningitis....	4	4	2	2
Measles....................	245	28	222	19
Diphtheria.................	208	37	220	30
Small-pox..................	0	0	1	0
Tuberculosis...............	166	105	152	113

Changes of Address.—Dr. Percy R. Bolton, to No. 18 West Sixteenth Street, New York; Dr. Lewis A. Conner, to No. 18 West Sixteenth Street, New York; Dr. William S. Dennett, to No. 8 East Forty-ninth Street, New York; Dr. Max Einhorn, to No. 20 East Sixty-third Street, New York; Dr. George B. Fowler, to No. 18 East Fifty-eighth Street, New York; Dr. Simon Marx, to No. 947 Madison Avenue, New York; Dr. A. Seibert, to No. 114 West Fifty-seventh Street, New York; Dr. Parker Syms, to No. 60 West Forty-seventh Street, New York.

The Philadelphia County Medical Society.—Owing to the fact that the meetings of the American Medical Association and of the Medical Society of the State of Pennsylvania fall this year upon May 8th and May 22d, regular meeting days of the Philadelphia County Medical Society, the latter society has substituted for these two meetings one meeting on May 15th, for which an extremely interesting programme is said to have been arranged.

The Surreptitious Reporter is going about in medical cricles. This we infer from a communication sent to us by Dr. J. Mount Bleyer disclaiming his responsibility for certain alleged interviews with him on the subject of nuclein at the German West Side Clinic. He says he spoke in the presence of a number of physicians, and did not know that a non-medical person was in his audience.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 21 to April 27, 1895:*

Promotions.

Baohe, Dallas, Lieutenant Colonel and Deputy Surgeon General, to be Assistant Surgeon General with the rank of Colonel. April 18, 1895.

Huntington, David L., Major and Surgeon, to be Deputy Surgeon General with the rank of Lieutenant Colonel. April 18, 1895.

Shannon, William C., Captain and Assistant Surgeon, to be Surgeon with the rank of Major. April 18, 1895.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending April 27, 1895:*

Barnum, M. W., Assistant Surgeon. Ordered to examination for promotion on May 15th next.

Brathwaite, F. G., Assistant Surgeon. Ordered to the Naval Hospital, Norfolk, Va.

Dickson, S. H., Surgeon. Ordered as delegate to the American Medical Association, Baltimore, Md.

Page, J. E., Assistant Surgeon. Ordered to examination for promotion on May 15th next.

Walton, T. C., Medical Inspector. Ordered as delegate to the American Medical Association, Baltimore, Md.

Society Meetings for the Coming Week:

Monday, *May 6th:* American Medical Publishers' Association (Baltimore); New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; New York Medico-surgical Society; Morrisania Medical Society, New York (private); Brooklyn Anatomical and Surgical Society (private); Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Boston, Mass., Medical Association (annual); Hartford, Conn., Medical Society; South Pittsburgh, Pa., Medical Society; Chicago Medical Society.

Tuesday, *May 7th:* Louisiana State Medical Society (first day—New Orleans); American Medical Association (first day—Baltimore); New York Obstetrical Society (private); New York Neurological Society; Buffalo, N. Y., Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Cattaraugus (annual—Salamanca), Columbia (annual—Hudson), and Orange (annual), N. Y.; Hudson, N. J. (annual—Jersey City), and Mercer, N. J. (annual), County Medical Societies; Androscoggin, Me., County Medical Association (Lewiston); Connecticut River Valley Medical Association (Bellows Falls, Vt.); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore).

Wednesday, *May 8th:* Louisiana State Medical Society (second day); American Medical Association (second day); New York Pathological Society; New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Societies of the Counties of Albany and Allegany (annual), N. Y.; Pittsfield, Mass., Medical Association (private); Franklin (annual—Greenfield), Hampshire (annual—Northampton), and Worcester, Mass. (annual—Worcester), District Medical Societies.

Thursday, *May 9th:* Louisiana State Medical Society (third day); American Medical Association (third day); New York Academy of Medicine (Section in Pædiatrics); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y. (annual); South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

Friday, *May 10th:* American Medical Association (fourth day); Yorkville Medical Association, New York (private); Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn; Medical Society of the Town of Saugerties, N. Y.; Cleveland, O., Medical Society.

Saturday, *May 11th:* Obstetrical Society of Boston (private).

Births, Marriages, and Deaths.

Married.

BAIRD—RENDELL.—In Brooklyn, on Wednesday, April 24th, Mr. William Wallace Baird, Jr., and Miss Violet Aurelia, daughter of Dr. and Mrs. John Rendell.

CARTER—KIERNAN.—In New York, on Wednesday, April 24th, Dr. De Lancy Carter and Miss Margaret F. Kiernan.

OWENS—CAPERS.—In Columbia, S. C., on Tuesday, April 16th, Dr. Lawrence B. Owens and Miss Clara Stewart Capers.

Died.

BURTON.—In Troy, N. Y., on Sunday, April 28th, Dr. M. H. Burton.

SHIPPEN.—In Baltimore, on Tuesday, April 23d, Dr. Edward Shippen, aged sixty-eight years.

Letters to the Editor.

SYMPHYSIOTOMY IN TEXAS IN 1880.

WILLIAM PENN, TEXAS, *April 9, 1895.*

To the Editor of the New York Medical Journal:

SIR: I have performed the operation of symphysiotomy (as I understand it) three times. The first operation was performed in Denison, Texas, in 1880. It was attended by such restrictive conditions that I can not even now give a complete account of it publicly; suffice it to say that it became necessary for me to save the child's life even at the expense of the mother's, and I am satisfied that any physician who could be made acquainted with the facts that moved me to the action taken would bear me out when I say that I did right, even if I had been so unfortunate as to lose the woman.

After I moved to William Penn I was called to attend a woman who had been in labor all night. Upon examination, it was found that the point of one finger rested against the sacrum, and that that of the neighboring finger was just beneath the symphysis pubis. The soft parts were swollen and sensitive, having undergone a good deal of handling during the night. I could not pass even one blade of the forceps. I made an effort, as in the former case, to divide the symphysis with a tenotomy knife, but the knife was small, and under my efforts the shell handle was split. I then used a blunt curved knife, and finally succeeded in separating the bones, but they did not part as in the preceding case. I failed to extract the child, and resorted to craniotomy. I should now avoid resorting to the operation in a case of flattened, contracted sacro-pubic diameter.

In 1889 a gentleman sent for me to see a negress that was living on his farm. The evidence in the case warrants the assertion that the woman had been in labor for five days and in convulsions for thirty (not thirty-nine) hours. The last case had discouraged me, and I now thought of trying the Cæsarean section, but the relatives were so opposed to it that I was about to give up doing anything. The landlord then said to me: "We must do something for the woman," and said that he would assist me in any possible way in whatever I thought best to do. It was night, and the only light was a "snuff-bottle lamp" (all the country brethren know just what I mean), which an old colored woman held while Mr. Dotson supported the patient's left lower limb. I separated the bones with a curved blunt knife very easily in comparison with my experience in the second case. The bones parted, I should think, to the extent of nearly two inches. The child was extracted and finally resuscitated.

An account of these operations was submitted to the editor of the *Medical News* more than a year ago, and Dr. R. P. Harris, of Philadelphia, became engaged in a correspondence that ensued and is not yet completed. Dr. Gould published an editorial based on the communication in the *Medical News* for January 26, 1895. Thereupon Professor Charles Jewett, of Brooklyn, endeavored to throw discredit upon my story in a letter published in the *New York Medical Journal* for March 2d. Was such an attack honorable? Was it even permissible to publicly and viciously denounce and defame a fellow-being before that individual had by proper process been found unworthy of respect and confidence? Let any dispassionate, honest mind carefully consider Professor Jewett's letter, and I am sure the decision will be that he has for once appeared in print "inspired" with a determination to exterminate his victim. I admit that I have not enjoyed great opportunities of education, yet education is not the man. I have not had access to the associations and surroundings that tend to high professional attainments, but such attainments and associations are not the man. In the true man the principle of truth stands as the basis of his career; after that should come education and improvement. Then the result is only a polished and improved man. But if in the man the principles of selfishness and unscrupulousness prevail, he may be educated and have every advantage, but those first principles will as a rule be the controlling elements in his life. I know, respect, and practice truth—more, I think, than Dr. Jewett has done in this instance. Even if I did bring forward the testimony of a layman, does Professor Jewett mean that such people are untruthful? If a farmer, any person of common sense, sees a thing with his own eyes—sees a knife inserted, feels the parts separated, sees the fingers depress the overlying tissue down between the separated bones, sees the forceps applied where before it had been impossible to do it, and sees the child extracted—is not that man competent to testify as to the procedure? That very woman makes an affidavit affirming what was done in the effort to save her child, also that I described the nature of the operation to her and insisted upon her obedience in every detail. Let those of my associates that hold me in disrepute speak for themselves. I am willing, because I know I have held out steadfastly for what I conceive to be right. If I have made mistakes, let him that is without sin cast the first stone.

The professor says loftily: "In a town of twenty-nine inhabitants," and adds "not a particle of medical evidence" (of course my evidence is here expunged), "no other physician was present," forgetful of the fact that doctors are not so accessible in a place of twenty-nine inhabitants as in a city of a million. Can Dr. Jewett be ignorant of the fact that we country fellows frequently have to undertake single-handed, with a simple pocket-case, what he himself would do with the aid of *six* assistants and a tray of sterilized instruments? Dr. Jewett says: "Dr. Williams says the pelvis was so contracted *transversely* that it was with some difficulty that two fingers could be passed," and then he adds contemptuously: "A condition in which delivery by symphysiotomy would have been clearly impossible." Yes, I say that the pelvis was so contracted that it was with some difficulty that two fingers could be inserted between the ischia—the very kind of distortion which holds out the greatest prospect of success, especially in young subjects. "Singularly enough, no laceration occurred," Dr. Jewett continues. This is the great argument in favor of subcutaneous symphysiotomy, as hæmorrhage is greatly guarded against, and there is a very effective barrier to sepsis. Then all the separation that is safe is obtained without division of the soft parts, and from what experience I have had in these three cases I question the advisability of severing the ligaments.

"Brilliant as were these successes, nothing was known of them in all these years by the local profession," remarks Professor Jewett. Judging from literature, I am disposed to believe it the custom of country physicians to adhere strictly to silence, especially when the unusual has occurred. We have a natural disinclination to publicity and to the scrutiny that may follow, as in this case for instance. We seldom have the pleasure of even a casual meeting, still more rarely of a consultation with a brother doctor. I had been unfortunate to the extent that I had lost everything by fire. To stay at home and work day and night was the only prospect of sustenance for my family and myself. Whatever reading I was able to do was during a portion borrowed from the three or four hours left for sleep. "By diligent inquiry it is shown that Dr. Williams's fellow-practitioners did not know until now that he made any pretense to operative work," says Dr. Jewett. I did not pretend, but *did* the work, as fellow-practitioners here testify. "Reputable physicians in the two counties in which the doctor has resided, including members of the State board of medical examiners, denounce the story as preposterous," Dr. Jewett goes on to say. If they do, which I do not believe, it is because they have been led to make such a statement unthinkingly and from motives of prejudice, selfishness, and jealousy. "Not one could be found who believes it. More than that, recent investigation by the local profession, as I am credibly informed, has disproved it," says Dr. Jewett. Let those local brethren come forward with their evidence and its source, for that is what I desire—the truth is all that I seek to establish. Joel O. Williams, M. D.

[Dr. Williams's letter was accompanied by a certificate signed by Dr. H. F. Pahl, of Brenham, Texas, dated April 4, 1895, as follows: "I hereby certify that I have assisted Dr. J. O. Williams, of William Penn, Texas, in various surgical operations during the last five or six years. Five years ago I assisted him in performing laparotomy in order to ligate the uterine arteries. My acquaintance with Dr. Williams covers a period of seven or eight years, and I know him only to respect him as an honorable gentleman, as a kind and conscientious physician, and as in every respect worthy of the esteem and confidence of the medical profession."

Dr. Williams also inclosed a certificate signed by Dr. N. J. Thompson, of Graball, Texas, dated April 4, 1895, which reads as follows: "I hereby certify that I have been with and assisted Dr. J. O. Williams, of William Penn, Texas, at various times in various operations, abdominal section for hysterectomy and vaginal hysterectomy being the most prominent of the operations. I have known Dr. Williams several years, and from what I know of him, and I think my chance for thorough acquaintance as good as that of any one, I esteem him as a man given up to the interests of the profession without respect of persons or money and positively honorable and honest. I further state that I as readily believe his statement in regard to the operation of symphysiotomy as that of any man."

The editor of this journal has received a private letter from Dr. Robert P. Harris, of Philadelphia, who says that for more than a year he has been studying Dr. Williams's character, skill, and reliability, and that he believes him to be one of the boldest and most original country surgeons to be found in the United States.]

THE INTRINSIC TOXICITY OF BLOOD SERUM.

New York, *April 27, 1895.*

To the Editor of the New York Medical Journal:

Sir: Referring to the letter in the *Journal* of this date in relation to the effect of serum injections on the blood, I would state that your correspondent has misunderstood my position if he considers that I have confounded intravenous with hypodermic injections. Morphine or any other drug acts more decidedly and rapidly if injected into a vessel rather than beneath the skin, but its ultimate effect is the same. So with serum.

The following thesis is submitted: In 1874 Malassez showed that there was lessened resistance of the red blood-corpuscles in disease; this fact is clinically familiar to all in the anæmia associated with many diseases. Héricourt and Richet showed (*Études exp. et cl.*, tome ii, p. 388) that the blood of different animals of the same species was not equally toxic; they also showed (*La Semaine méd.*, 1891, p. 21) that thirty grammes of dog's blood to each kilogramme of a rabbit might be introduced with safety into the peritoneal cavity of the latter animal, whereas if seven grammes were introduced into the veins the animal died, and it was imprudent to inject more than forty grammes of blood into the peritoneal cavity. The intraperitoneal injection of thirty grammes to the kilogramme was followed by profound disturbance in the rabbit's general nutrition, and the animal lost weight during many days. In the paper by Hayem referred to by your correspondent it is stated (*Compt. rend. hebd. des séances de l'Acad. des sci.*, 1884, p. 749) that there was anæmia following the intraperitoneal injections of blood, and further that the red corpuscles of rabbit's blood were destroyed almost immediately when introduced into the serum of dog's blood, though the converse occurred more slowly.

Mairet and Bosc have shown (*Compt. rend. hebd. des séances et mém. de la Soc. de biol.*, 1894, p. 586) that if blood serum is deprived of its coagulating properties and is injected into an animal it produces almost identical effects with those caused by ordinary serum; and these investigators hold that the pernicious effects following serum injections are due to intrinsic toxic properties of the serum. They made further investigations and learned that an alcoholic or ethereal extract of serum did not possess toxic properties, but the precipitate produced by the alcohol did.

From these investigations I deduce that the blood-corpuscles in diphtheria are, probably as a consequence of the action of the toxine, easily subject to cythæmolysis; that the serum of the horse is not always the same, but contains a variable proportion of a toxic principle; that this toxic principle is slowly absorbed from subcutaneous injections, and notwithstanding its small dose produces cythæmolytic and toxic effects on the individual. That these facts are recognized abroad may be learned from Variot's report (*La Sem. méd.*, 1895, p. 142), in which he refers to the hyperthermia produced by antitoxine serum, considers it due to a constituent of the serum, and advises that the antidiphtheritic principle should be isolated from the serum so as to rid it of "*an unstable vehicle that may become dangerous*"; and to Sevestre's report (*ibid.*) that serum from a non-immunized horse injected into children suffering with non-diphtheritic sore throat caused febrile reaction and eruption. Clinically, symptoms have been produced in children by the hypodermic injection of antitoxine serum similar to those produced by Hayem (*Du Sang*, p. 240 *et seq.*) by the injection of alien serum in a lower animal; Lebreton and Magdelaine (*La Sem. méd.*, 1895, p. 57) reported as a result of their experience at the Hôpital des enfants malades, that the antitoxine injections were not entirely harmless; that they might cause hyperthermia, lesions of the kidneys, and even in certain cases a deterioration of the general condition.

Other investigators could be cited in evidence of the fact that antitoxine serum is not, *per se*, harmless, and that the noxiousness is due not to the antitoxine, but to the serum from which it must be separated. And this latter subject is now a matter of research. Samuel Treat Armstrong, M. D.

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of January 2, 1895.

The President, Dr. C. C. Barrows, in the Chair.

Rupture of the Uterus and Vagina during Labor.—Dr. J. Clifton Edgar presented a case of this kind, with the following history: Mrs. S., thirty years of age, pregnant with her sixth child, had gone into labor on November 26, 1894, at 4 p. m., a midwife being in charge. At 9 p. m. the membranes had ruptured, and the midwife had then recognized an abnormal presentation, and had turned the case over to a physician. The midwife, on being questioned, had denied that any medicine, such as ergot, had been administered, and stated that she had made only two vaginal examinations. The physician called to the case stated that he had made several unsuccessful attempts to deliver by version, and had then sent the patient to the hospital, where she had been admitted early on the morning of November 27th. The house physician had recognized a shoulder presentation in the left scapulo-anterior position, with a prolapse of the right arm and the funis. The patient had rapidly failed after her admission to the hospital, and had shown signs of collapse. As soon as possible podalic version had been performed, and no difficulty had been experienced in turning and extracting. The placenta failing to appear, an examination had revealed a utero-vaginal rupture of the genital tract, and the umbilical cord had been followed up into the peritoneal cavity. At this time no external hæmorrhage of moment had taken place. Stimulants had been administered and preparations made for laparotomy, pending the arrival of Dr. Edgar, but the patient had died two hours and forty minutes after delivery and five minutes before his arrival. He had secured the placenta by passing a hand up through the vagina into the peritoneal cavity and removing it from among the intestines. The abdomen had then been opened and the genital tract removed. This constituted the specimen presented to the meeting.

The autopsy had shown a complete separation of the left lateral half of the utero-vaginal junction, with a rupture in the left wall of the lower uterine segment and in the upper part of the left vaginal wall. Death had been due to internal concealed hæmorrhage, as several pints of fresh blood were found in the abdominal cavity. This hæmorrhage had evidently come from the left uterine artery, which had been completely torn across.

The house physician stated that after the patient's admission to the hospital there had been no external evidences of hæmorrhage other than the symptoms of collapse. The child weighed seven pounds. The right clavicle and humerus had been broken, and the tissues of the right shoulder had been bruised and cut as if by some sharp instrument.

The speaker said that this case illustrated the hopelessness of an expectant treatment of uterine rupture by gauze drainage where the injury had involved the uterine artery and hæmorrhage had been going on into the peritoneal cavity, as well as the difficulty of determining the extent and character of the injury by vaginal examination alone.

Dr. W. Gill Wylie said he would of course favor laparotomy if it could be resorted to sufficiently early. Those who had been lost had died chiefly from our inability to reach the seat of trouble quickly enough. He had seen many cases where there had been partial rupture, and several where there had been tearing of the uterine artery. In curetting or treating the uterus soon after labor or abortion, it had not been uncommon to find the tissues exceedingly friable, and he thought that a similar condition of the tissues might be present in many cases of rupture of the uterus. He would be willing to attach a clamp or pass a deep silver-wire suture in some cases so as to hold the gaping parts together, but ordinarily he would not favor primary suture.

Dr. Robert A. Murray said that the chief interest of the subject lay in the fact that this accident was very rare, and that consequently we were not usually prepared for it. He had seen only four cases of rupture of the uterus. In one case the medical attendant had first observed the patient suddenly become quiet, and then examination had shown a profuse flow of blood and a rupture into the broad ligament and peritoneal cavity. The child had been extracted immediately in this case, yet the mother had died. In another case, seen in consultation, the child had passed entirely into the peritoneal cavity. Labor had, of course, subsided. The hæmorrhage had not been great, but the collapse had been very well marked. The attending physician had been sure that he had heard the fœtal heart after the rupture had occurred, so the speaker had drawn the child back through the rent. It had been found to be alive, but had speedily succumbed. Another case he had seen in the Charity Hospital, at the invitation of Dr. Coe, who had arrived about an hour and a half after the rent had occurred. The patient had been found in profound collapse. On examination, the speaker said he had found a narrow rim of cervix left and a rent into one broad ligament. The hæmorrhage had been quite profuse, and, although the patient's condition had been bad, it had been deemed wise to open the abdomen. On doing this it had been found that the blood had passed into the broad ligament, and that the cellular tissue had become absolutely black and engorged from the infiltration of blood. The classical symptoms—such as the sound of a tearing, its occurrence during a severe pain, and very profuse flowing—had been absent, as in the case just presented. The important signs had been the sudden cessation of labor, and the appearance of collapse. In the case reported the laceration had been found to be in the segment between the cervix and upper portion of the uterus, but absolutely in the broad ligament. In such a case as this, he thought, treatment by tamponade would have been the best. It had been proposed that these patients should always be laparotomized, but in his opinion it was exceedingly bad practice to make this a routine measure. The collapse of the patient, the great prostration, the almost inevitable delay in procuring instruments, and the severe hæmorrhage, were all contraindications to laparotomy. The operation usually only added to the shock, and the patients were almost always lost. Statistics from the Vienna Maternity Hospital had shown this very plainly. They had saved about fifty per cent. of the patients treated by the expectant plan. If there was arterial bleeding it could not be controlled by the tamponade, hence it had seemed to him proper in such an emergency to grasp the edges of the rent by clamp forceps. To be sure, this was largely working in the dark, but the pulling down of the uterus to assist us in this manipulation was in itself an excellent means of controlling the hæmorrhage. The introduction of a silver suture, as suggested by Dr. Wylie, was also a valuable means at our command. He did not believe in a haphazard introduction of gauze, for, as the uterus was in a friable condition, one was very apt to tear the uterus still further, to say nothing of the fact that unless the packing was carefully and systematically done one could hardly expect it to be an efficient means of controlling the uterine hæmorrhage.

In conclusion, he would advise very strongly against performing a laparotomy on most of these patients, on account of the condition of collapse usually present. He said this, notwithstanding the fact that most of the text-books laid this down as the usual and proper method of treatment.

Dr. Wylie said that before we condemned laparotomy this method of treatment should be given a fair trial. Up to four or five years ago the practice had been to stimulate the patients before performing laparotomy, and, as was well known, these patients had usually died. He had performed laparotomy on at least two patients, already in marked collapse, and had succeeded in saving both. We should therefore exercise the greatest care and judgment in deciding under what circumstances laparotomy held out any hope of saving these patients.

Dr. Murray said that if there was an extra-uterine pregnancy and the patient bleeding, there was, of course, no other way of stopping the hæmorrhage than by performing laparotomy, but in the case of rupture of the uterus there was an opportunity of gaining access to the bleeding point and controlling it without resort to laparotomy. The physicians in Vienna had obtained very superior results from the tampon as compared with laparotomy.

Dr. Edgar said that there had been a suspicion that ergot had been given by the midwife in the case reported, but she had positively denied that she had done so. In Vienna the statistics, he thought, showed that the mortality was about the same from laparotomy and from the expectant treatment with gauze. Most of the thirteen patients that had been lost had been treated by the expectant plan, and a large portion of these had died of septicæmia. Many of them before entering the hospital had been treated by midwives, and had been made septic before admission. Experience had led them in Vienna to conclude that in cases which had not been made septic the patient had a better chance for her life if she was drained with gauze. The mortality by any method was about seventy-five per cent.

Fracture of the Neck of the Radius.—Dr. Parker Syms presented a boy of five years who had recently sustained a fracture of this kind. The mother stated that the injury had been caused by a forcible twisting of the forearm. The symptoms had been a slight apparent swelling at the center and lower part of the elbow, the production of crepitus on rotating the forearm, and a false point of motion, which had been distinctly felt just below the head of the radius. The fracture had been just above the tuberosity, and the patient could flex the forearm, as the biceps attachment had not been disturbed. The speaker regarded the case as one of separation of the epiphysis.

A Large Enterolith.—Dr. Wylie presented a large calculus which he had removed about a week previously from a woman. She had given a history of having had some years previously a series of attacks of what had been supposed to be hepatic colic. The illness in question had begun with pains about the stomach and a tendency to vomit. Her physician had made attempts for three days to move the bowels, and then fæcal vomiting had set in. The speaker said that he had first seen the patient at this time and had advised feeding her entirely by the rectum. The next morning he had found a slight fullness just below the liver. He had operated by an incision such as would have been made in an operation for gall-stone, and he had found the stomach adherent to the edge of the liver. The gall bladder had appeared to be normal, and no obstruction had been found in the gall ducts. After having enlarged the original incision he had felt this calculus in the small intestine, and he had then opened the intestine and removed it. Since the operation the patient had done well. The stone, by causing an obstruction at the ileo-cæcal valve, had given rise to the symptoms. The stone was cylindrical in shape, and was about two inches long and an inch wide. The composition of the stone had not yet been determined.

A Metallic Catheter broken off in the Male Bladder and Urethra.—Dr. J. F. Erdmann reported such a case. The patient, S. N., sixty-seven years of age, had had an enlarged prostate for seven or eight years. On November 11, 1893, his family physician had tried to introduce a silver catheter, and, while making "the curve," without exerting any unusual force, the catheter broke. The speaker had seen the patient shortly afterward, and had been shown the two upper joints of an ordinary pocket-case catheter, the first joint of which had been broken off within the urethra. The genitals had been bloody and painful, and the bladder could be readily outlined on the abdominal wall. On palpating the perinæum, a pipestemlike body could be felt for about an inch and a half from the arch of the pubes. With the finger in the rectum, nothing but the enlarged prostate could be felt. On making firm pressure with the left index finger under and against the arch of the pubes, and with the right hand pushing the penis down upon the mass, as one pushed a glove on the finger, it had been possible to grasp the tip of the foreign body through the penis. Then, by making the same movements as in withdrawing a steel sound, he had finally been enabled to feel the tip of the catheter *per rectum*. By a continuance of the same movements, aided by the pushing force of the finger in the rectum, the upper extremity of the piece of catheter had been brought out of the penis. A considerable quantity of blood clot had been passed after this. It had then been found that the upper or screw end of the joint of the catheter had but two turns and a half remaining, and had been fortunately broken off comparatively smooth, thus accounting for the success of the manipulations undertaken for its removal.

Actinomycosis.—Dr. Alexander Lambert presented two specimens showing pure cultures of actinomycosis. They had been obtained by a very simple method—viz., the small nodules of actinomycosis had been thoroughly washed in several dishes of sterilized water, and after this washing had been dropped upon the broth.

(*To be concluded.*)

Book Notices.

Clinical Gynæcology, Medical and Surgical, for Students and Practitioners. By Eminent American Teachers. Edited by John M. Keating, M. D., and by Henry C. Coe, M. D., M. R. C. S., Professor of Gynæcology, New York Polyclinic. Illustrated. Philadelphia: J. B. Lippincott Co., 1895. Pp. xvii–994.

In this work of a thousand pages, by eminent American teachers, as the title announces, we have the ripe thought of mature minds in a form which is highly creditable to the American profession.

There is no specialty in medical science in which aggressiveness and progressiveness are more marked than in gynæcology, and there is none in which the literature more fully keeps pace with the thought. Monographs and "systems" follow each other in quick succession. It is scarcely a year since a work similar to the one which is under discussion was launched upon the market, while three others by single authors have appeared within almost the same period.

The criticism has been advanced that works like this one, *variorum* works, are deficient in the conciseness and effectiveness which result from the labors of a single master-mind. It is said that, however meritorious a series of essays or monographs may be, there must inevitably be no little overlapping or repetition in the consideration of closely allied subjects; but we wish to say distinctly that we consider this an advantage rather than a drawback. For example, in this book certain phases of menstruation are considered in the sections on Methods of Gynecological Examination and Outlines of Gynecological Therapeutics, while the entire subject of menstruation is fully and admirably treated of in the section on Functional Diseases, and thus the reader has the advantage of having the lights and shadows of the subject depicted from different standpoints.

Very touching is the tribute which is paid to the memory of the deceased senior editor of the work. The brightness of that light which was too soon extinguished will be conceded by those who are at all familiar with recent American medical literature, which Keating did so much to illuminate and adorn.

The same is eminently true of the brilliant and versatile Goodell, whose introductory essay causes a thrill of pain, for it reminds us that the skillful hand, skillful alike with the pen and with the knife, is forever palsied, that the warm heart has ceased to throb. The courteous Christian gentleman whom none knew but to love is now with us but in memory. The words of hope and obligation in his essay become, alas, *morituri salutamus*. There have been many eminent teachers and practitioners of obstetrics and gynecology in Philadelphia, but none more eminent or worthy than he. Warm discussions have marked the progress of these sciences in that city, but, however heated they may have been, the urbanity and courtesy of Goodell were unfailing. *Ave! vale!*

An interesting feature in this work, compared with others of a similar character, is its greater comprehensiveness. Not only are those themes discussed which have heretofore been recognized as purely gynecological, but also, with greater breadth of view, those which are collateral and related, including diseases of the breast, the rectum, and the anus. It is to be hoped that this may serve as a useful example to future authors and editors. It has always appeared singular to us that these subjects have generally been ignored in gynecological text-books. The mammary glands are certainly an essential part of the genital apparatus, and certain morbid conditions of the rectum and anus are inseparable from disease of the pelvic organs in women.

So broad, indeed, has the field of gynecological surgery become that it could scarcely be considered inappropriate if the lesions and neoplasms of all the abdominal viscera which may complicate or simulate disease of the pelvic organs were discussed in a work of this character. Abdominal surgery owes very much to gynecologists for its present high development. It is logical and inevitable that one who works in this field to any extent should familiarize himself with it in all its phases and varieties.

The illustrative portion of a work of this character is a most important one; the text alone must always be insufficient. We are happy to commend that feature of the work under discussion; but we must add that we object to the introduction of portraits; it savors too much of the prevailing mania for such representation in the daily papers. For the general character of the work we, in common with the large circle in which its influence will be felt, offer hearty and unhesitating praise. Most of the names with which its pages are adorned are too well known for anybody to question the authority with which they speak. On some of their subjects the last word has been spoken, displacements probably, pelvic inflammation perhaps; on others, such as the vaginal route for pelvic and abdominal operations, we may have to retrace our steps and re write our opinions.

A Text-book of the Diseases of Women. By Henry J. Garrigues, A. M., M. D., Professor of Obstetrics in the New York Post-graduate Medical School and Hospital; Gynæcologist to St. Mark's Hospital in New York City, etc. Containing Three Hundred and Ten Engravings and Colored Plates. Philadelphia: W. B. Saunders, 1894. Pp. 17–19 to 690. [Price, $4.]

The author has aimed, he tells us in the preface, to make a practical book for general practitioners and students, and we think he has succeeded most notably. The whole plan of the work and its execution show that he has an accurate idea of what it is that medical men in general wish to know about a subject. Hence he has avoided theoretical discussions, historical accounts, and the niceties of operative technique. An excellent feature of the work is that the author gives modes of treatment as they are actually practiced in America, so that he justly hopes it will be found by American physicians and students more useful than similar books written by foreign authors.

The text is arranged in two divisions, general and special. The first deals with the generalities of anatomy, physiology, and ætiology, with the examination of patients, and with treatment in general; the second, with the diseases, malformations, and injuries of particular parts. It is not our purpose to subject the various chapters to critical consideration *seriatim*; we shall only call attention to a few features that seem specially noteworthy. The book is quite comprehensive, and we think the author is to be commended for having given it this character; its scope includes venereal affections of the genitals, but diseases of the breast are not considered, and those of the urinary tract are noticed only briefly, except in connection with fistulæ. Special chapters are devoted to hæmorrhage and leucorrhœa. For this the author says he expects to be criticised, but we think he was wise.

The anatomical descriptions are brief, but full enough for the purpose; they are clearly written, and they bring out the embryology in its proper significance. The descriptions of particular parts are followed by short statements as to their functions. A few of these paragraphs on function seem a little fanciful; for example, speaking of the pubic hairs, the author says: "During copulation these hairs come in contact with the corresponding growth of the other sex, and by the irritation thus caused in the nerves at their root give a pleasurable sensation."

Dr. Garrigues's remarks on massage, which the limits of the book have not allowed him to describe save in the most general terms, seem to us very judicious. He says: "The procedures being rather painful, there is no danger of causing sexual excitement. The manipulations are quite complicated, have to be adapted to the special abnormal conditions obtaining, and can hardly be learned except by seeing them carried out by an expert. Unfortunately, this treatment requires so long sittings that a gynæcologist or general practitioner will hardly find time to use it himself, and, on the other hand, such fine diagnosis is necessary that nobody who has not a large experience in abdominal examinations can be entrusted with it."

The therapeutical virtues of gold having of late excited unusual interest, we note that Dr. Garrigues gives it as his impression that chloride of gold and sodium has a decided effect as a resolvent, especially in chronic oophoritis. He thinks that cotton root is superior to all other hæmostatics in chronic cases, whatever the cause of the hæmorrhage may be. He prefers a decoction made fresh every morning by boiling three heaping teaspoonfuls of rasped cotton-root bark in a pint of water for a quarter of an hour. By the boiling it is evaporated to half a pint; it is then to be strained and taken in three doses during the day. This decoction, he says, not only checks hæmorrhage, but seems to have a tonic influence on the uterus and on the general health.

We are glad to find the following in the section on pelvic cellulitis: "Some modern gynæcologists would have us believe that inflammation is rare in this tissue [the connective tissue within the pelvis], and that when it does occur it rarely runs into suppuration. It is an unfortunate but common quality of the human mind to be engrossed by one idea to the exclusion of others. When a new discovery is made we are apt to be dazzled by it to such a degree that we overlook other equally well established facts. There was a time when every pelvic inflammation was looked upon as cellulitis; then there came a reaction and it was all peritonitis; and of late many exclusively lay stress on salpingitis. As a matter of fact, connective tissue in the pelvis, just as anywhere else in the body, is prone to become inflamed; but as a rule we have only clinical evidence of its existence. Since the patients usually recover, we have only few autopsies to fortify our argument with. Yet we have some performed on women in which the inflammation was strictly confined to the connective tissue, without implicating peritonæum, tube, or ovary; and there is the still more convincing case of a man who fell asleep on a wet bridge, and in whose pelvic connective tissue a large abscess formed, while the peritonæum was entirely free. In this case certainly no puerperal influence could be invoked, nor could the cellulitis be attributed to uterus, tubes, or ovaries. Some gynæcologists express themselves as if the disease did not concern them when it is connected with childbirth and abortion; but, even if they do not practice obstetrics, they are very likely to be called in when an operation has to be performed, and science is one, independently of the limits within which the physician may find it convenient to confine his work. But, even independently of puerperal influences, cellulitis exists, and if we do not see it in laparotomies as often as we find peritonitis it is for the simple reason that few laparotomies are performed when the inflammation is limited to the pelvic connective tissue."

In general Dr. Garrigues's style of writing is simple and clear—wonderfully so when we reflect that proficiency in the English language was probably not seriously attempted by him until comparatively late in life. Except in very rare instances, his meaning is perfectly plain. One of these exceptional cases occurs in the section on trachelorrhaphy, where we find (on page 387) the following sentence, which seems to us somewhat obscure: "The result of the cutting is that we have four denuded surfaces, which two and two melt together in the depth of the angle, and between the denuded surfaces a trumpet-shaped undenuded piece of mucous membrane." We presume the accidental omission of a few words accounts for the ambiguity of the sentence "If the urine is only saturated," etc. (page 192, ninth line from the foot). There seems to have been a slip also in the expression "6 parts of chloride of sodium in hot water" (page 171); the number of parts of water is not indicated. We have noticed only one harsh violation of good English, and that is on page 507, in the phrase "the sick tubes," meaning of course the *diseased* tubes. On page 532 there is a foot-note beginning "This subject was first treated by Dr. Mary Dixon Jones, and has been corroborated," etc. Now, evidently Dr. Garrigues does not mean to say that the *subject* has been corroborated.

In his choice of words the author is generally most judicious. He does not like hybrids, and we therefore wonder that he uses the word vaginitis, merely remarking that the Germans have substituted colpitis for it and that elytritis is sometimes used by English writers; elytritis is often employed, and we are sure every reader would have understood it. We are glad to find that the author objects forcibly to the word cœliotomy; to our thinking, his objection is perfectly sound. In at least one instance he has fallen into the indefensible practice of hyphening two men's names together to form a possessive—thus (page 472) "Schroeder-Hofmeier's method." Purely typographical errors are not common in the book; we have noticed the following: "Tympanitis" for *tympanites*, "Englemann" for *Engelmann*, "catharrhal" for *catarrhal*, "Ferguson's" for *Fergusson's* (but not in all instances), "laparatomy" for *laparotomy*, and "Bernay's" for *Bernays's*.

The typography of the book is good, and the press-work has been well done. The illustrations are for the most part apt and well enough executed to serve the purpose; one of them, Fig. 105, shows Sims's posture very well. Color is used in three of them, not to very great advantage, we think.

Nearly everything that we have here said of the work has been commendatory, but we wish to add specifically that we think it one of the few really good books on gynæcology for the general practitioner.

The Uric-acid Diathesis. Gout, Sand, and Gravel. By Dr. F. Levison, Kreisarzt in Copenhagen. Translated from the German and edited by Lindley Scott, M. A., M. D. Aberd. Cassell and Company, Limited: London, Paris, and Melbourne, 1894. Pp. 11 to 152. [Price, 3*s*. 6*d*.]

The uric-acid condition has long been a study of absorbing interest, and so much would seem to depend upon an understanding and a solution of its mysteries that all that concerns it must be of interest to the medical profession. To an elucidation of its intricacies the work of such men as Garrod, Haig, and Roberts has contributed much, and, though much remains to be found out and though, owing to the difficulties attending the study, it is not remarkable that many mistakes have been made and many false theories advanced, yet certain distinct and proved gains have been made. Anything, then, which can add to our knowledge of the subject is most important, and Dr. Levison's work does add to it in no small degree. His book is a collection of all the important work that has been done upon the subject and an argumentative and logical consideration of the information so advanced. To this is added much original work, with the result of giving us a presentation of the subject in its most recent and advanced aspect. Some of his conclusions are of so much interest that quotation will not be inapt. Of the physiological significance of uric acid he says:

"1. Uric acid is formed in the body by the disintegration of the albuminous substances of its tissues, especially of the nuclein or nucleins.

"2. The excretion of uric acid becomes increased or diminished by all factors (diseases, medicines, poisons, etc.) which give rise to a more rapid or slower disintegration of the cellular elements of the body, and especially of the leucocytes.

"3. The taking of food, especially flesh food, causes a temporary leucocytosis (digestive), this leucocytosis probably arising from the nuclein of the food.

"4. The amount of uric acid excreted in twenty-four hours is not influenced to a great extent by food. There is, however, this distinction noticeable: the easily digestible animal albumins set up digestive leucocytosis and formation of uric acid much quicker than the vegetable albumins, which are difficult to digest."

Of lithiasis he concludes that, "When the chemical composition of the urine is such that uric acid becomes deposited in the kidney, the crystals are first of all laid down in the tubules of the cortex, tubuli contorti, etc. As long as they are not numerous they may be washed out by the flow of urine without giving rise to any particular inconvenience. Under special conditions—as, for instance, when the proportion of uric acid in the urine becomes suddenly increased—a large number of crystals are at one time deposited in the kidney tubules, and act there like a foreign body. There is then set up an irritation of the epithelia characterized by the formation of casts of various kinds, which are in turn infiltrated with crystals and lay the foundation of a concretion which may reach a certain size even in the collecting tubes. If such a minute calculus lies in the calices or in a hollow of the pelvis, it increases in size and causes a diseased condition of the mucous membrane. By means of this an albuminous substance is excreted, and deposited in consecutive layers as the concretion grows in size from the additional deposits of the uric acid. If uric acid is deposited in an already diseased kidney, and if casts have already formed in the tubes, the concretions will form more rapidly; this will also be the case when pieces of necrosed tissue or foreign bodies exist in the kidney, as they lend themselves to the infiltration of uric-acid crystals.

"If this pathological process continues for some time it will not only tend to the formation of larger concretions, but may also cause chronic disease of the kidney by extension from the epithelia to the kidney tubes themselves, and later on may also attack the interstitial tissue. For this reason granular atrophic kidneys are very frequently found at the autopsy of patients who have suffered from stone of the kidney for many years.

"This chronic kidney affection may early interfere with the excretory power of the kidney, and, as Charcot states, the uric acid appears to be partly retained in that stage of the kidney affection in which the urea and other easily soluble constituents of the urine can pass off. Here, perhaps, lies the explanation of the fact that symptoms of gravel or stone of the kidney very often occur in younger men who later in life are affected with typical gout."

The book is one which will well repay a careful reading, and the information contained in it can not but be of great value.

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book specially adapted for Students of Medicine and Pharmacy. By W. Simon, Ph. D., M. D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, etc., Baltimore, Md. Fifth Edition, thoroughly revised. With Forty-four Illustrations and Eight Colored Plates, representing Sixty-four Chemical Reactions. Philadelphia: Lea Brothers & Co., 1895. Pp. xiii–502.

The fifth edition of Professor Simon's *Chemistry* conforms to the pharmacopœia of 1890. Moreover, it presents the chemical information needed by the student of medicine or pharmacy in an orderly, forcible, and clear way. These qualities are especially noticeable in view of the fact that works on chemistry are not seldom "dry" in the extreme. The matter is full and sufficient and yet not redundant, and the colored plates which illustrate certain of the chemical reactions are useful additions.

Cod-liver Oil and Chemistry. By F. Peckel Moller, Ph. D. London: Peter Moller. New York: W. H. Schieffelin & Co., 1895. Pp. cxxiii–508.

This is a book which ought to be two books, for, beyond the fact that the authorship is the same, there is little or no connection between a monograph on cod-liver oil and a diagrammatically illustrated treatise on organic chemistry. The fact, too, that there is enough in each part of the book to make a good-sized volume does not make more apparent the reason for their appearance within one cover.

The first part of the book treats of cod-liver oil, and is charmingly written. It is a historical, descriptive, and statistical consideration of the oil and everything which concerns it, from the time the fisherman starts in pursuit of the cod to the time when the bottled oil is put upon the market. It is true that the whole treatise is in the interest and to the glory of the Moller process, and therefore, strictly speaking, proprietary, and yet there is so little of proprietary bragging and so much of modesty and honesty in it that the work rises above its class. We know of no work on cod-liver oil more complete, interesting, and satisfactory than this, and the analytical parts of the work and the discussion of the various "preparations" and "substitutes" the market has from time to time contained are of special value to the physician.

The second part of the book is a diagrammatic work on organic chemistry. The object of the author is to simplify the subject and make it interesting by a new system of graphic formulæ. His system is good, the formulæ are interesting, and the text generally is excellent, but we scarcely think the subject so important to the practitioner as the author would have us believe, and we doubt whether the physician will find time and inclination to learn chemistry from a picture book, even if it is a good one.

The Medical Annual and Practitioner's Index: A Work of Reference for Medical Practitioners. By Various Editors and Contributors. 1895. Thirteenth Year. Bristol: John Wright & Co. London: Simpkin, Marshall, Hamilton, Kent, & Co., Ltd. Pp. lxxx–751.

To say that the *Medical Annual* is one of the most useful books with which we are acquainted and one which most successfully attains the object of its editors is no slight praise, and yet it is certainly justified. The work is so well known, however, that it seems unnecessary to say more than that this volume is in every way worthy of its predecessors. Of course the most important novelty is that of the diphtheria antitoxine, and, though it is going too far to say that anything absolutely essential pertaining to it has been omitted, yet the chapter is brief to the degree of failing to satisfy, and might well have been made more generously inclusive.

We can not refrain from mentioning what we think a mistake in the make-up of this book and one we have criticised before, and that is the enormous amount of space given to advertisements within its covers. The text of the book occupies something over six hundred pages and the advertisements about a hundred and fifty. And not only is the text preceded by an advance guard of thirty pages of these advertisements and followed by a rear guard of over a hundred, but even the title pages, the pages of contributors, the pages of contents, and the preface are interleaved and backed by matter of the same class. For example, page xxxi informs us that this is *The Medical Annual and Practitioner's Index*, and page xxxii that Nestlé's food is "an entire diet for infants, children, and invalids." Page xxxiii repeats the name of the book and gives us information of its editors, contributors, and publishers, while page xxxiv tells us that "Johannis" is "the king of natural table waters." All this is bad, for the text is too good for its company, and, while advertisements no doubt "pay," it seems a pity that the purchaser of this book should be obliged to buy so many of them. For these reasons we much prefer the American edition, which is sold under the name of *The International Medical Annual.*

BOOKS, ETC., RECEIVED.

System of Surgery. Edited by Frederic S. Dennis, M. D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, etc., and assisted by John S. Billings,

M. D., U. S. A., LL. D. Edin. and Harv., etc. Vol. I. The History of Surgery—Pathology—Bacteriology—Infections—Anæsthesia—Fractures and Dislocations—Operative Surgery. Profusely Illustrated. Philadelphia: Lea Brothers & Co., 1895. Pp. 17 to 880.

The History of the Pennsylvania Hospital. 1751–1895. By Thomas G. Morton, M. D., Fellow of the College of Physicians, etc., assisted by Frank Woodbury, M. D., Fellow of the College of Physicians, etc. Publication authorized by the Contributors at their Annual Meeting, May, 1893, and directed by the Board of Managers. Philadelphia: Times Printing House, 1895. Pp. viii-3 to 575.

Amputation of the Entire Upper Extremity (including the Clavicle and Scapula) for Sarcoma following Fracture of the Clavicle. Extensive Thoracoplasty by Schede's Method. By W. W. Keen, M. D. (Read before the Philadelphia Academy of Surgery, February 4, 1895.)

Amputation of the Female Breast. By W. W. Keen, M. D. [Reprinted from the *Cleveland Medical Gazette.*]

On a Modification of the "Invagination" Method of Operating for the Radical Cure of Hernia. By John H. Packard, M. D. (Read before the Philadelphia Academy of Surgery, February 4, 1895.)

The Surgical Treatment of Inguinal Hernia. By Henry O. Marcy, M. D. [Reprinted from the *Transactions of the New York State Medical Association.*]

A Valuable Discovery. The Cure of Impotency. By Hugo Engel, M. D. [Reprinted from the *Medical Summary.*]

Modern Surgery of the Pelvic Floor in Women. By George H. Kirwan, M. D. [Reprinted from the *American Gynæcological and Obstetrical Journal.*]

Vaginal Cœliotomy. By Hiram N. Vineberg, M. D. [Reprinted from the *Medical Record.*]

Miscellany.

The Dietetic Treatment of Chronic Bright's Disease.—The April number of the *Quarterly Medical Journal for Yorkshire and the Adjoining Counties* contains an article on this subject by Dr. W. Hale White, of Guy's Hospital. There are few, says the author, who would be inclined to dispute the statement that the dietetic treatment of chronic Bright's disease is a very important subject, and its importance has been enhanced of late years by the statement so often made that the ideal food for the patients is milk. According to Lépine, milk is the ideal diet, for it replaces the albumin that the patient loses, all its nitrogen is absorbed and used, it does not irritate the kidneys, and it is diuretic and aids the elimination of the toxines. For the past few years the author has carefully examined the title of milk to be considered a perfect food in chronic Bright's disease.

Milk is said to diminish the amount of albumin, but, he says, this is not by any means always true, and he has seen many cases illustrating the falsity of the statement. It must be remembered that if milk did decrease the albuminuria, there is no proof that this is of any benefit to the patient. Patients who are very ill with chronic interstitial nephritis may lose only a few grains of albumin a day. This can not, of itself, says Dr. White, be of such importance, as the absorption from the intestine of a very little more albuminous material would, if not lost in some excretion, quickly make up the deficiency. The majority of persons who pass albumin have not Bright's disease at all, but are suffering from heart disease, pyuria, specific fevers, etc. All these and other considerations indicate that even in a case of Bright's disease in which the loss of albumin is considerable this of itself is really not quite so important as is usually thought. If it was, restricting the diet to food containing less albumin than ordinary ought to be harmful to the patient, for not only would he be losing more albumin than when in health, but he would be taking in less. Then, too, it must be borne in mind that even in cases of Bright's disease where the change from a milk diet to meat increases the albuminuria, unless this increase is considerable, it is not so great as the increased absorption of albumin is, which is due to the fact that the meat diet contains more albumin than milk. The conclusion is, says the author, that the amount of albuminuria in chronic Bright's disease is of itself unimportant; that it is often more under a milk diet than under others; that even if it is more upon a meat than upon a milk diet, the increase is, nevertheless, usually more than compensated for by the increased absorption of albumin.

It is frequently urged, says Dr. White, that milk is easily digested, but his own experience is that often this is directly contrary to fact. He has noticed that patients suffering from chronic Bright's disease who are fed solely upon milk suffer from indigestion, that the milk by its mere bulk tends to dilate the stomach, and that it also causes constipation. With regard to its diuretic qualities, the author has observed this fact about it, but he has also frequently met with cases in which it was not diuretic. The theory that milk is less irritating to the kidneys than an ordinary diet, and that it contains fewer toxines, comes entirely, he says, from the study and not from the bedside.

Dr. White has convinced himself that none of the reasons urged in favor of a milk diet are valid, and he goes on to consider the effect of different diets upon the excretion of urea and on uræmia; the effect on the general health of the patient; the effect on the circulation; and any exceptional cases for which milk is suitable. The author relates the histories of several cases with regard to the excretion of urea and to uræmia, and the conclusions to be drawn from them, he thinks, are that the effect of diet upon the excretion of urea is most uncertain, for it does not follow that more proteid in the food means more urea excreted; in fact, the reverse is often true. Moreover, a milk diet is much more likely to induce uræmia than an ordinary diet, and that, consequently, those who are constantly showing slight uræmic symptoms should take the usual food of healthy persons.

As to the effect of diet on the general health, Dr. White says that he has watched his patients closely and has noticed that they always felt better on an ordinary diet than on one of milk; even if they are on a farinaceous diet, their health improves if meat is added to it. In the *Observations sur le régime lacté absolu dans l'albuminurie* for 1893, says the author, Vergely protests most strongly against the use of milk in chronic Bright's disease, for it leads, he says, to weakness and causes digestive troubles that prevent all further treatment, and it leads also to a diminution of weight. In this opinion Dr. White fully agrees.

The next thing to consider, he says, is the effect of various diets upon the circulation, and from what has been said it is clear that a full ordinary diet containing meat should be expected to act as a cardiac stimulant, which is exactly what it does. Nothing is more striking, says Dr. White, than the alteration which takes place when a patient who has a feeble circulation from cardiac failure, bronchitis, or some other cause, and has been on a milk diet for some time, is put upon an ordinary diet. The pulse becomes fuller, the circulation improves, and the œdema may even diminish. There can be no doubt whatever, he thinks, that in cases of chronic Bright's disease with a feeble circulation ordinary diet containing meat is an excellent thing, and the good that is done is due largely to the cardiac stimulant action of the extractives in the meat. For the same reason this is just the class of cases in which a little alcohol is beneficial, for it not only aids the circulation but improves the digestion.

With regard to a consideration of the cases for which a full diet is undesirable, says Dr. White, a diet composed largely of meat must be given with caution to patients in whom the pulse tension is high and the hypertrophied heart is acting powerfully, for in such cases the chief danger lies not in uræmia, but in hæmorrhage, especially cerebral. The extractives in the meat, acting as powerful cardiac stimulants, will increase the force of the heart, raise the blood pressure, and greatly add to the liability to cerebral hæmorrhage. But we ought not, he says, unless the pulse tension is very high, to fly at once to the other extreme and give nothing but milk, for it must be remembered that the high-tension pulse is in itself probably evidence of a uræmic condition, which, it has been seen, is rather accelerated by milk. For the most of such patients it will suffice to order small meals, one or two more in the day than usual; they should be advised also to take a little fish and fowl rather than beef and mutton—a little fish or bacon with a little toast and tea for breakfast, a sandwich or two at eleven o'clock, a few oysters for luncheon with bread and butter, chicken with vegetables, bread, and a sweet for dinner, and a glass of milk the last thing at night, peptonized if the digestion requires it. Alcohol should be avoided altogether if the pulse tension is high, for its action as a cardiac stimulant tends to increase it.

An ordinary diet, says Dr. White, should be avoided when the patient is the subject of acute Bright's disease. We know, he says, that one variety of it is part of a specific fever, and the other variety is in its sudden onset, its pyrexia, the close resemblance of the pathological changes in the kidney to those in the lung in pneumonia, and in many other points, very like a specific fever, and, just as we have learned that pneumonia is a specific fever, so some day perhaps we shall discover that acute Bright's disease is a specific fever, and we know that during febrile processes the patients do best on a liquid diet. For this reason the author usually prescribes milk or a farinaceous diet for patients who are suffering with acute Bright's disease.

Rupture of the Uterus at the Onset of Labor.—In the *Lancet* for April 13th Mr. William Harris Best, of London, relates the following case, on account of its rare occurrence: The patient, who was thirty-two years old and the mother of seven children, and had been accustomed to hard work, had been attended in her previous confinement by the author about eighteen months before the present one. She never had had any miscarriage or any symptoms of syphilis. The author was sent for, and on his arrival was told by the nurse that a hæmorrhage had occurred from the vagina. Only one pain had occurred, and had been followed by a gush which she thought was the liquor amnii following the sudden rupture of the membranes. The hæmorrhage ceased when the nurse changed her from the right to the left side; continuous pain was from this time felt on the left side of the abdomen. After waiting about three quarters of an hour, as labor pains had not come on, Mr. Best was sent for. On his arrival he found the patient had rather an anxious look on her face. The left-sided pain, though not severe, became so if the abdomen was handled or if she was moved or attempted to move herself. She appeared very nervous and upset, so that it was difficult to tell definitely whether the pain was very acute or the tenderness very great, as she cried out as soon as the vulva was touched in making a vaginal examination. There was practically no collapse, and the depression was only such as might have been produced by a slight hæmorrhage. Her pulse was fairly good, eighty beats to the minute. The patient appeared to be very much disturbed at the prospect of being touched or examined. The pain was confined to the left side and was not severe, the patient talking in an ordinary way and not complaining unless she attempted to move. On vaginal examination the author at first failed to reach the presenting part or, indeed, the os; on inserting the whole hand into the vagina, however, he could get his middle finger inside the os only about a third of an inch, but felt nothing definite. Though the patient said she had felt movements of the child shortly before labor, he could not hear the fœtal heart sounds. Abdominal palpation yielded no definite result, as the patient could not bear its being done properly. Nothing definite was thus made out by either examination. The patient now begged to be left alone for a time, and, as her pulse remained fairly good and there was but little pain, her request was granted. Neither labor pains nor hæmorrhage occurred for the next hour; her pulse remained about the same, and she became rather more comfortable. At this stage the case looked like either a placenta prævia or slight accidental hæmorrhage, the pulse keeping good, and the patient not complaining of feeling faint or exhausted appeared to place concealed hæmorrhage or ruptured uterus out of the question. As at this time the patient's condition appeared to be improving rather than going back, the author decided not to use any means for bringing on labor, at least for a time, other than plugging the vagina and orifice of the womb, which latter would answer the double purpose of preventing further external hæmorrhage and keep up a slight reflex stimulation on the womb. This was carefully done with iodoform wool pellets. A few hours after this the patient did not appear to have altered much. She took nourishment and kept it down; her pulse was, however, quicker, her face looked more anxious, and a feeling of sickness was complained of. Her temperature in the mouth was 101° F. Mr. Best now decided to endeavor to accelerate labor by resorting to more active measures. No hæmorrhage followed the removal of the plugging. On making a vaginal examination a hard, indistinctly fluctuating mass was found in front of the anterior vaginal wall and remained after the bladder was emptied. A Barnes's bag was with difficulty passed through the os, the difficulty not arising from the rigidity of the os or any malposition of it, but from its great height. Ergot was given by the mouth freely. No real labor pains followed, though about an hour afterward the bag was found in the vagina and the os readily admitted two fingers. Still no presenting part could be definitely made out. The next size Barnes's bag was easily passed, and after a time, on its removal, three fingers could easily be passed through the os and a shoulder was found presenting. Without much difficulty, by means of the bipolar method of version, a foot was brought down into the lowest and posterior part of the uterus. The child was found to be dead, skin peeling off the foot. The passive condition of the uterus during removal of the child was noticeable. No blood or liquor amnii up to this time had escaped. A rupture in the anterior uterine wall could now be detected. The placenta, which was found to be quite free in the uterus, was easily brought away, the uterus remaining flaccid. Hypodermic injections of ether and ergotine were now given, as the patient complained of feeling faint. She quickly revived. The uterus could not be made to contract, though not even an ordinary amount of external hæmorrhage occurred. An iodoform and eucalyptus suppository was left in the upper part of the vagina with its apex passing through the external os, and repeated every six hours. Sickness gradually increased, and the patient died thirty-six hours after the birth of the child with symptoms of peritonitis and exhaustion. No post-mortem examination could be obtained.

The points worthy of particular notice in this case, says the author, appear to be the very early stage at which rupture occurred; the absence of any other exciting cause than the faulty position of the child (no marked anteversion of the uterus being made out); and the comparative mildness of the first symptoms occurring after so grave an accident.

Chlorobrom as a Hypnotic in the Insane.—Dr. J. Percy Wade, of Catonsville, Md., contributes an article on this subject to the April number of the *American Journal of Insanity*, in which he remarks that chlorobrom is a mixture of the simplest description, and contains thirty grains each of chloralamide and potassium bromide to an ounce of water. The solution was first used, he says, by Dr. Charteris in seasickness, for which it is said to be an excellent remedy, owing to its hypnotic action. The drug is said to have less action upon the heart and upon the blood-vessels than chloral, and, although depressing to the circulation and the heart, is probably less so than the bromides or other allied drugs. It is less disagreeable to take than paraldehyde, which is often followed by lassitude, headache, or sickness in the morning. Chlorobrom, on the other hand, is not very disagreeable to take, and it leaves no ill effects.

Dr. Keay, says the author, has used the drug with good results, and he recommends it highly in melancholia, especially active melancholia, or brain exhaustion from overwork, and for worried business men, when insomnia is the most serious symptom to combat. In mania, general paresis, and the excitement of epilepsy he has found the drug not suitable, and prefers sulphonal or trional. He administers an ounce of the solution an hour before bedtime, and if the excitement is great he increases the dose from an ounce and a half to two ounces with perfect safety.

The time required for the drug to act, says Dr. Wade, is probably longer than for paraldehyde or sulphonal, for it takes, in mania, about three quarters of an hour to produce sleep, and in melancholia an hour. The sleep is quiet and peaceful, lasting, on an average, five hours and a half. In one case the patient, who was noisy and refused to remain in bed, was given a dose of paraldehyde, but it was immediately vomited. After the vomiting had subsided an ounce of chlorobrom was given and the patient became quiet in fifteen minutes and fell asleep in forty-five minutes, and remained so for four hours. In another case of recurrent mania, when the patient was quarrelsome and there was inability to sleep, chlorobrom was given with excellent results, and it apparently reduced the length of the attack, the former attack having lasted for four months, while the latter, under the influence of the chlorobrom, lasted for six weeks only.

Dr. Wade's experience with the drug in simple and in active melancholia confirms Dr. Keay's report; but in acute mania, notwithstanding Dr. Keay's statement, he has found that the drug produced sleep, although it took somewhat longer to act; and the sleep, he says, was as refreshing as that produced by other hypnotics. It was administered ninety-six times to sixteen patients, including three with acute mania, three with melancholia, seven with dementia, and one each with active melancholia, epilepsy, and periodic mania. The dose was an ounce, as a rule, and was found to be sufficient to produce sleep in most cases.

Dr. Wade says that he has not been able to test the action of the drug in general paresis, and that there seems to be some doubt as to its action in that disease. He thinks it is justifiable to state, as Dr. Keay has done, that chlorobrom is a safe and reliable addition to the small list of hypnotics; that it is most favorable in melancholia, especially of the milder type, and that in acute mania its action is fully as reliable and lasting as that of any other hypnotic we possess.

Sulphurous Deposits on the Cannulas and Tubes used in Tracheotomy and Intubation.—The *Journal de clinique et de thérapeutique infantiles* publishes an article by M. Cochinal, who writes that in the pulmonary complications of diphtheria the breath is very often fœtid and all who come near the patient have been able to observe that the cannulas and the tubes introduced into the trachea were covered with a distinctly black deposit. This deposit was seen on the silver cannulas as well as on the metallic tubes employed in intubation. Acting on M. Variot's advice, the author made an analysis of the composition of this black deposit and found that it was formed by a sulphide.

Through a small apparatus zinc and diluted hydrochloric acid were introduced, and it was ascertained that the gas which was set free had no action on paper saturated with sugar of lead. Then the author added the blackened cannula, and immediately the test paper assumed the brown tint of lead sulphide. The expiration evidently furnished, he says, gases containing sulphur products, but these did not exist except in a very small proportion, for the black tint scarcely appeared except at the end of two or three days, save in some exceptional cases where it was manifested after twenty-four hours.

It will be very interesting, says M. Cochinal, to be able to determine in an exact manner the quantity and the nature of the sulphur compounds thus produced, although it will be very difficult to subject a sick child to the very troublesome application of a mask provided with tubes intended to collect the expired products, when the child needs a large space to effect its respiratory acts.

The Ohio State Medical Society.—The semi-centennial meeting will be held at Columbus on May 15th, 16th, and 17th, under the presidency of Dr. D. N. Kinsman, of Columbus. The programme includes the following papers: The Physician—A Civic Factor, by Dr. W. S. Phillips, of Belle Centre; The Antitoxine Treatment of Diphtheria, by Dr. W. T. Howard, of Cleveland; A Clinical Report on the Epidemic at Ashtabula, by Dr. F. D. Case, of Ashtabula; A Demonstration of Technique of Culture Tests, by Dr. A. P. Ohlmacher, of Cleveland; Fracture of the Skull, by Dr. E. C. Brush, of Zanesville; Fractures of the Base of the Skull, with Special Reference to Eye Complications, by Dr. C. W. Taugeman, of Cincinnati; Dermatology: its Scope, Evolution, and Present Status, by Dr. William T. Corlett, of Cleveland; Deafness from Intranasal Disease, by Dr. J. A. Thompson, of Cincinnati; The State's Care of Dipsomaniacs, by Dr. Chauncey P. Landon, of Columbus; The Pathology, Diagnosis, and Treatment of Malaria (illustrated by lantern slides and microscopical demonstration), by Dr. Judson Daland, of Philadelphia; The Complications and Sequelæ of Epidemic Influenza (La Grippe) and Their Prophylaxis, by Dr. A. H. Hewetson, of St. Clairsville; The Surgical Conception of Peritonitis, by Dr. C. N. Smith, of Toledo; Cervical Adenoma, by Dr. W. J. Means, of Columbus; The Treatment of Pneumonia, by Dr. Joseph Eichberg, of Cincinnati; The Early Recognition of Cancer of the Cervix, by Dr. Hunter Robb, of Cleveland; Report of a Case, by Dr. Thaddeus A. Reamy, of Cincinnati; Cancer of the Breast: Remarks on the Pathology and Treatment, by Dr. J. C. Oliver, of Cincinnati; The Vaginal Route for Operations on the Pelvic Viscera, by Dr. D. Tod Gilliam, of Columbus; Meningitis as a Complication of Otitis Media, with a Report of a Case, by Dr. S. E. Allen, of Cincinnati; Circumscribed Thoracic Empyema, by

Dr. George A. Collamore, of Toledo; Uterine Reflexes, by Dr. W. H. Humiston, of Cleveland; Is this Leprosy? (with presentation of two cases), by Dr. J. G. McDougal, of New Lexington; Medicine (poem), by Dr. W. S. Battles, of Shreve; Enucleation of the Appendix, by Dr. C. S. Hamilton, of Columbus; Epistaxis in its Most Severe Forms: with Reports of Cases, by Dr. Max Thorner, of Cincinnati; The Value of So-called Local Treatment, by Dr. J. F. Baldwin, of Columbus; Systematic Dissemination of Tuberculosis from a Patch of Lupus Vulgaris, by Dr. Robert Peter, of Toledo; A Report on Typhoid Fever, by Dr. John Eliot Woodbridge, of Youngstown; Some Conditions requiring Special Care after Abdominal Section, by Dr. Rufus B. Hall, of Cincinnati; Acute Intestinal Obstruction Dependent upon Anomalies of the Mesentery, by Dr. N. Stone Scott, of Cleveland; Removal of a Chylous Cyst of the Mesentery, by Dr. T. C. Hoover, of Columbus; Cœliotomy for Extra-uterine Pregnancy; Lateral Anastomosis by Murphy's Button, by Dr. J. C. Reeve, Jr., of Dayton; Constipation, Ordinary and Extraordinary, by Dr. S. Loving, of Columbus; The Treatment of Malignant Disease of the Rectum, by Dr. George B. Evans, of Dayton; How to Recognize Incipient Insanity, by Dr. A. B. Richardson, of Columbus; Review in Neurology, by Dr. H. S. Upson, of Cleveland; Neural Infixation, by Dr. R. Harvey Reed, of Columbus; The Prognosis of Paralysis, by Dr. Phillip Zenner, of Cincinnati; Remittent Miasmatic Fever, by Dr. James Macready, of Monroe; Spondylitis *vs.* Scoliosis, by Dr. S. L. McCurdy, of Pittsburgh; The Electrical Treatment of Facial Blemishes, by Dr. O. Hasencamp, of Toledo; Some of the Pathological Conditions of the Nose Secondarily Affecting the Eye, by Dr. W. A. Melick, of Zanesville; The Influence of Antiseptics on Modern Cataract Extraction, by Dr. C. F. Clarke, of Columbus; Tuberculosis in the Light of History, by Dr. H. H. Spier, of Ravenna; The Nature of the Organ and the Nature of the Conditions as Factors in the Ætiology of Tuberculosis, by Dr. Eli Conn, of Akron; A Plea for a State Hospital for Crippled and Deformed Children and for those of Defective Sight and Hearing, by Dr. S. S. Gray, of Piqua; A Report of Two Cases of General Gaseous Emphysema of the Body after Death in Typhoid Fever, with exhibition of specimens, by Dr. W. T. Howard, of Cleveland; Cases Illustrating the Radical Cure of Inguinal, Femoral, and Ventral Herniæ by the Author's Operation, by Dr. C. A. L. Reed, of Cincinnati; Sympathetic Ophthalmia, by Dr. Louis Stricker, of Cincinnati; A Case of Gastrostomy, by Dr. W. D. Hamilton, of Columbus; Psoriasis Varioliformis, by Dr. E. H. Shields, of Cincinnati.

The American Microscopical Society.—The next meeting will be held at Cornell University, in Ithaca, N. Y., on August 21, 22, and 23, 1895—that is, during the week before that of the meeting of the American Association for the Advancement of Science, which is to be held in Springfield, Mass. Ithaca is as central a point as can be found for the meeting. It is connected with the great trunk lines in such a way as to make it very readily accessible by railroad. The unsurpassed beauty of the region and the richness of both its terrestrial and aquatic fauna and flora make Ithaca an ideal place for holding the meeting. It is equally attractive to students of natural history and to those who love beautiful scenery. The facilities of the university and its equipment for carrying on microscopical work must add to the attractiveness of Ithaca as a place of meeting. In most of the scientific departments of the university there are already members of the society, and in all departments, we are assured, there will be a most hearty welcome, and every reasonable aid will be furnished for the success of the meeting. The president of the university, Dr. Schurman, extends to the society a most cordial welcome. The university buildings, which will be at the disposal of the society, are especially adapted for the formal presentation of papers, blackboard illustrations, hanging of diagrams, etc., as well as for any demonstration that authors may desire to make. Besides the attraction of papers and demonstrations by members, nearly all the opticians have expressed not only a willingness but a desire to be present and make an exhibit of their microscopes and microscopical apparatus, thereby affording the members an opportunity to see all the new and standard apparatus. A special feature of the meeting will be the setting apart of one or more sessions for the reading of papers on methods and the demonstration of special or new methods. The chairman of the local committee, Professor W. W. Rowlee, or the president, Professor Simon H. Gage, will be glad to receive requests from those who desire to have some specially difficult method or structure elucidated, and an effort will be made to get some member particularly expert in such subject to demonstrate it before the society. President Gage's enthusiasm in behalf of this meeting will guarantee a profitable time to all who come. The opportunity to observe his methods in his own laboratory is a privilege none could afford to lose even if there were no other attractions.

The New York Academy of Medicine.—At the last general meeting, on Thursday evening, the 2d inst., the special order was a memorial service in remembrance of the late Dr. Alfred L. Loomis at which addresses were to be read by Dr. Lewis A. Stimson, the Rev. Henry M. MacCracken, and the Hon. Abram S. Hewitt.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 9th inst., the following papers will be read: What is Croup? by Dr. S. Henry Dessau; A Report of Intubation Cases, by Dr. F. M. Warner; The Treatment of Croup by Calomel Sublimations, by Dr. J. Henry Fruitnight; and A Board of Health Bulletin on Prevention of Disease among Infants, with the presentation of a new pasteurizer, by Dr. Henry L. Coit.

At the next meeting of the Section in General Surgery, on Monday evening, the 12th inst., a paper entitled Repair after a Bone-flap Operation on the Skull will be read by Dr. George Woolsey, and one on The Use of Torsion instead of Ligatures, by Dr. John F. Erdmann. Patients will be presented and pathological specimens, new instruments, and apparatus exhibited.

The Harlem Medical Association of the City of New York.—At the eighth regular meeting, on Wednesday evening, the 1st inst., the following papers were to be read: The Use of Trial Lenses in Doubtful Cases of Asthenopia, by Dr. W. E. Chase; Iritis—Diagnosis and Treatment, by Dr. George H. Cocks; and The Significance and Value of the Knee-jerk in Diagnosis, by Dr. W. M. Leszynsky.

The New York Medico-surgical Society.—At the next regular monthly meeting, to be held on Monday evening, the 6th inst., the following papers will be read: The Pathology of the Tubercle, relative to the Lung, by Dr. Joseph Muir; and Hysterical Amaurosis—a Report of Four Cases Treated by Hypnotism, by Dr. J. Arthur Booth. New instruments will be exhibited.

A College Hospital for Infectious Diseases.—It is announced that such a hospital is to be established in connection with Yale University.

The Death of Dr. Carl Thiersch, of Leipsic, professor of surgery in the University of Leipsic, is reported to have taken place on Sunday, April 28th.

Original Communications.

THE DIAGNOSIS OF LESIONS OF THE LUMBAR CORD,

CAUDA EQUINA, AND CONUS MEDULLARIS.*

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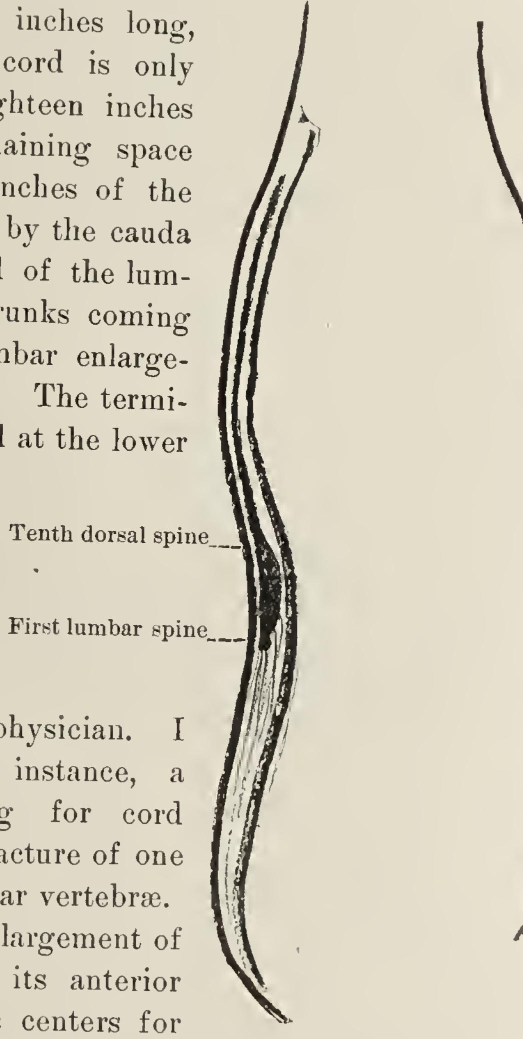
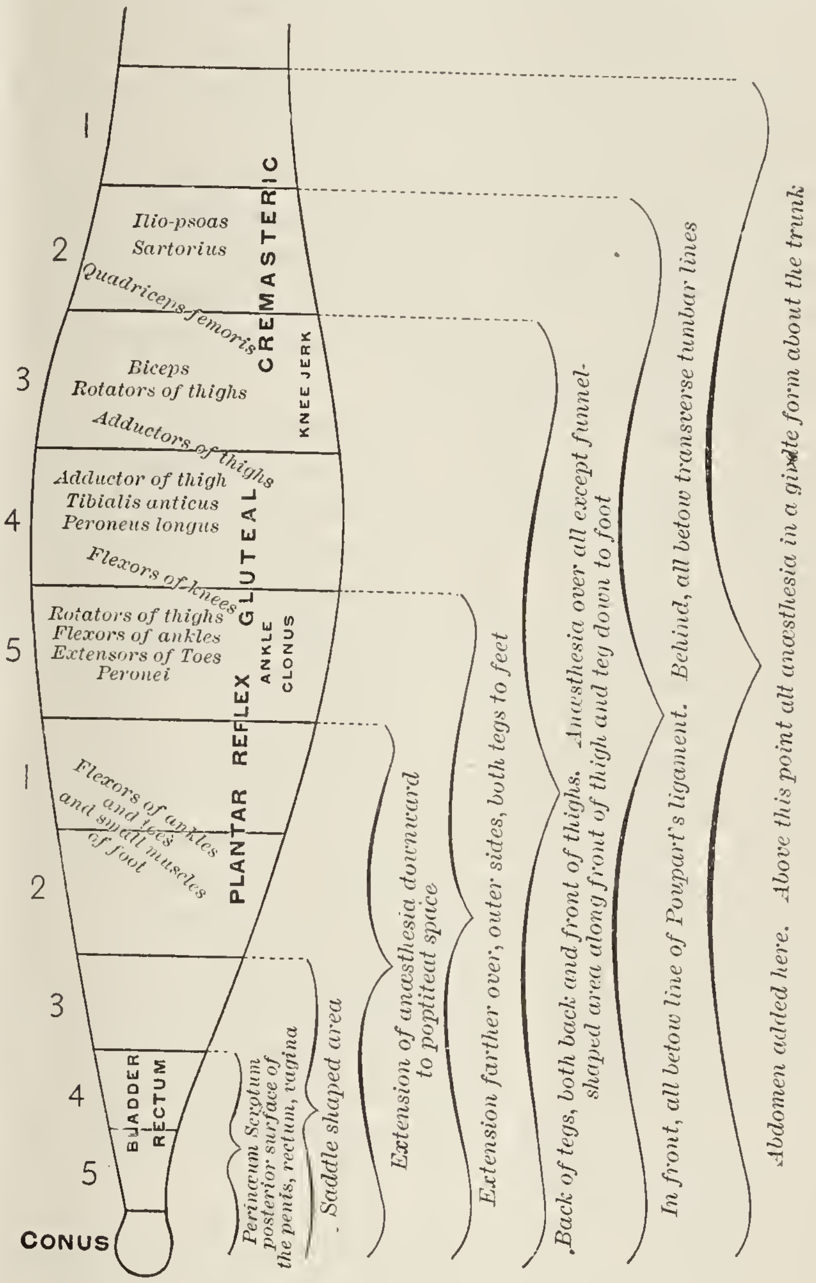
As an evidence of the progress of neurological science of late years, there is perhaps nothing more interesting than the unraveling of the mysteries of the tracts and centers and nerve trunks of the lower part of the spinal cord. We are now in a position to make very accurate diagnoses of the nature and position of lesions in the lower part of the spinal canal from a study of the peculiar distribution of anæsthesias, the extent and character of paralyses, and the disturbances of various reflexes. Then, too, lesions in this part of the organism, such as caries, spinal injuries, hæmorrhages, and neoplasms, are not so rare but that a brief exposition of the points of differential diagnosis should be of service to every physician.

The lumbar enlargement of the cord lies in the spinal canal opposite to the space between the lower portions of the tips of the tenth dorsal and first lumbar spines. Thus the spinal canal is twenty-six to twenty-eight inches long, and the spinal cord is only seventeen or eighteen inches long. The remaining space of nine or ten inches of the canal is occupied by the cauda equina, composed of the lumbo-sacral nerve trunks coming off from the lumbar enlargement of the cord. The termination of the cord at the lower border of the first lumbar vertebra is not always kept sufficiently distinct in the mind of the student or physician. I have seen, for instance, a physician seeking for cord symptoms in a fracture of one of the lower lumbar vertebræ.


Tenth dorsal spine
First lumbar spine

The lumbar enlargement of the cord has in its anterior horns the trophic centers for all of the muscles of the lower extremities. Into it pass all the sensory fibers from the lower extremities, genitals, rectum, and nates. In it are the reflex centers for such important reflexes as the knee-jerk, ankle-clonus, cremasteric, plantar, and gluteal reflexes. And here, too, are the centers for the sphincters of the bladder and rectum, and for erection, menstruation, and parturition.

These various organs and functions are represented serially in the segments which constitute the lumbar enlargement, five lumbar and five sacral segments. The centers for the lowest muscles of the lower extremities are in the lower segments of this enlargement, and the higher the situation of the muscles in these extremities the higher the representation in the segments. There is also a segmental sensory distribution, only the areas of sensibility run lengthwise down the extremities, and require special study in order to appreciate their relations to the nerve trunks and segments of the cord. The diagram submitted will be helpful to this end.


1
2
Ilio-psoas
Sartorius
Quadriceps-femoris
3
Biceps
Rotators of thighs
Adductors of thighs
4
Adductor of thigh
Tibialis anticus
Peroneus longus
Flexors of knees
5
Rotators of thighs
Flexors of ankles
Extensors of Toes
Peronei
1
Flexors of ankles and toes and small muscles of foot
2
3
4
5
CONUS
CREMASTERIC
KNEE JERK
GLUTEAL
ANKLE CLONUS
PLANTAR REFLEX
BLADDER
RECTUM
Perinæum Scrotum posterior surface of the penis, rectum, vagina
Saddle shaped area
Extension of anæsthesia downward to popliteal space
Extension farther over, outer sides, both legs to feet
Back of legs, both back and front of thighs. Anæsthesia over all except funnel-shaped area along front of thigh and leg down to foot
In front, all below line of Poupart's ligament. Behind, all below transverse lumbar lines
Abdomen added here. Above this point all anæsthesia in a girdle form about the trunk

Thus destructive lesion of the fourth and fifth sacral segments causes anæsthesia of the perinæum, posterior surface of the penis, scrotum, rectum, and vagina. At the third sacral segment this area is extended out over the buttocks and downward on the backs of the thighs, so that the area corresponds to that touched when seated in a saddle. The higher the lesion the greater the extent of this anæsthesia. The peculiarities of this distribution are noted in the diagram. The reflexes have their particular segmental centers. Thus of the very important ones, the knee-jerk center is in the third lumbar segment, the ankle-clonus in the fifth lumbar segment, the cremasteric in the three upper lumbar,

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* Read before the Hospital Graduates' Club, February 28, 1895.

and the bladder and rectum in the lowest point of the cord, in the fourth and fifth sacral segments and the conus. By some authorities this club-shaped tip of the cord, the conus medullaris or conus terminalis, is supposed to be exclusively the center for the vesical and rectal reflexes, though this is not proved.

We must remember, in this consideration of the segmental arrangement of the muscles, reflexes, and so on, in the lumbar cord, that there are also in the lateral columns fibers coming down from the brain which convey motor impulses from above to the muscles and which also inhibit the reflexes. Thus a lesion in the second lumbar segment might exaggerate the knee-jerk and cause ankle-clonus, because of the inhibitory fibers to these centers being affected. On the other hand, a lesion in the third lumbar segment may give us the very singular phenomenon of lost knee-jerks in conjunction with ankle-clonus.

Now, the cauda equina is composed chiefly of the great nerve trunks arising from this lumbar enlargement, one pair from each segment, and hence each pair of nerves represents the motor, trophic, sensory, and reflex functions of the segment from which it springs. Any lesion of them must necessarily cause much the same effects as would arise from lesions of the segments from which they come. Thus lesions affecting the sacral nerve roots produce the same anæsthetic areas as do lesions of the sacral part of the cord, together with paralysis of the bladder and rectum. A lack of symmetry on the two sides in the distribution of the paralyses and the anæsthetic areas would be, however, presumptive of a cauda rather than a cord lesion. An exceedingly slow and irregular development of the symptoms would also suggest a cauda lesion. But it is not always easy to distinguish cauda from spinal-cord lesions, and the fact must be borne in mind that often both the cauda and the lower part of the cord are involved together in the pathological process.

It has been demonstrated that pressure on the cauda equina affects to a greater degree the nerves in the middle of the cauda than those near the surface (Thorburn). The lower nerve roots of the cauda are nearer the middle line than the nerves which pass out above them; and when pressure is brought to bear upon the cauda, the nerves which pass out at the lower level are more seriously affected than those emerging above them.

In lesions such as hæmorrhage or compression, where improvement may take place, the upper roots are apt to show signs of a change for the better soonest, and may indeed recover completely, while the lower ones remain as before.

Pressure upon the nerves of the cauda is often sufficient to produce widespread paralysis when sensation is but slightly affected (Starr). This is often of value in a differential diagnosis, since lesions of the same magnitude in the lumbar enlargement would produce only a moderate amount of paralysis, depending upon the segment or segments involved.

In traumatic conditions the external evidence of fracture below the first lumbar vertebra, affecting the lumbar or sacral portions of the spinal column, would be an important indication of involvement of the cauda equina.

Pain and tenderness over the lumbo-sacral regions have been noted in some of the cases of lesions of the cauda equina, such as neoplasms. The pain is nearly always chiefly sacral.

In cauda lesions the sciatic and pudic and sometimes the anterior crural and obturator nerves are particularly apt to suffer. Whether the degenerative reaction in the muscles supplied by the affected nerves will be present depends naturally upon the amount of damage done to them, which is variable.

As to the reflexes, the knee-jerks will be absent if the nerves to the anterior thigh muscles are affected. In no case of purely caudal lesion will they be exaggerated. The plantar reflexes are usually absent. The extent of the lesion in the cauda will determine to what degree the sphincters are disturbed. Disorder of the mechanism governing the sphincters of the bladder and rectum will depend upon whether their particular nerves are involved and to what degree. Urinary retention with overflow incontinence is not very frequent in cauda lesion, and when it does exist may be recovered from as pressure diminishes. The presence of complete paralysis of the bladder and rectum is rather suggestive of coincident lesion of the lower tip of the cord.

Bedsores, and sometimes perforating ulcers, occur in a certain number of cases of cauda lesion.

In some instances it may be necessary to differentiate peripheral nerve lesions, such as multiple neuritis and disorders of the lumbar and sacral plexuses. Ordinary multiple neuritis presents no difficulty, but a bilateral lumbo-sacral neuritis may offer obstacles in the way of diagnosis for some time until absolutely characteristic symptoms have appeared. In other lumbo-sacral plexus lesions a bilateral manifestation of symptoms should form a diagnosis of cauda disorder, though in some very rare instances the cauda lesion may involve but one side and thus give rise to confusion.

Occasionally a lesion of the cauda (tumor) may for a time simulate locomotor ataxia by presenting some of the symptoms common to both—viz., loss of knee-jerks, disorder of the bladder sphincter, sharp pains radiating down the legs, and peculiarity of gait. But there will be no ataxia, and papillary symptoms will be wanting, while atrophies and anæsthesias are almost certain to develop in the course of time and thus demonstrate the presence of a cauda lesion.

The most common of all lesions affecting the cauda is fracture and dislocation of the lumbar spine, compressing or crushing the nerve roots, or both. Moderate dislocation of the vertebra may cause little damage, because of the large size of the canal and the small part of it occupied by the nerves. The symptoms will vary with the extent and degree of the injury. Hæmorrhage is another though infrequent lesion of the cauda equina. Much more common than this are neoplasms. Among the tumors which have been described as developing in this part of the vertebral canal and affecting the cauda equina are sarcoma, fibrosarcoma, meningocele in spina bifida, gumma, cavernous angeioma, and multiple neuromata.

The chief characteristics of tumor compression of the cauda equina are slow and progressive development of the atrophic paralyses, reflex disorders and anæsthesias peculiar to the region, and intense and increasing sacral pain of a radiating character, and sacral tenderness. Sometimes retrogression may take place, or the growth be temporarily arrested.

As regards isolated lesions of the conus medullaris, it has become current in neurological literature to a certain extent that we have from such complete paralysis of the bladder and rectum. This would mean that the vesical and rectal reflex centers then were situated wholly in the conus. But, as far as I can learn from a careful search of the literature, this current idea is based upon two cases reported respectively by Oppenheim and Lochmann. Oppenheim (*Arch. f. Psych.*, xx, 1889, p. 298) has a paper Ueber eine sich auf den Conus Terminalis des Rückenmarks beschränkende traumatische Erkrankung; but, on reading his paper and the result of the autopsy, I find it is not at all a case of "traumatic disease limited to the conus terminalis," for he describes how the changes become less marked in the sacral portion of the cord, and still less so in the lumbar portion. Lochmann's case, too, is not wholly satisfactory in this respect.

THE SIGNIFICANCE OF EYE SYMPTOMS IN KIDNEY DISEASE,

WITH SOME REMARKS ON THE NECESSITY OF A MORE RIGID ENFORCEMENT OF THE LAWS REGULATING MEDICAL PRACTICE.*

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The saying that familiarity breeds contempt does not apply to the science of medicine, for, when one has acquired the necessary knowledge to make him familiar with his subject, that knowledge fills him with the profoundest respect for his calling. In fact, not only does one not feel contempt, but is prone to magnify its importance; indeed, ever since the days of specialties we find each specialist magnifying his subject as if he thought it of greater importance than anything else in the world. Familiarity with the specialist may breed contempt for him, but never for his subject. I am not an enthusiast, yet I should like to impress on you the importance of the subject I present for your consideration to-night, and when I have finished I desire your free discussion.

The eye presents many features, owing to its peculiar function, that permit of a closer examination during life than any other organ of the body. We have in the back of the eye an expanded nerve between which and the outer air only transparent media intervene, in consequence of which a glance through these media is like looking through glass; the exposed end of the optic nerve can be seen, together with its expansion into the retina and its blood-vessels; changes here can be studied positively during life that, situated in other parts of the body, can only be appreciated by the subjective symptoms their presence occasions.

Considering, therefore, that changes in nervous tissue and blood-vessels are, very often, the first evidences of constitutional disease, we see at once how important these facts are.

Nephritic disease influences the eye externally and internally; the external manifestations, such as œdema of the eyelids and ocular conjunctiva, possess no special significance, and do not, as a rule, attract attention until after œdema in other parts of the body, together with other symptoms, have demonstrated the actual seat of disease. In fact, œdema of these parts, occurring independent of œdema elsewhere, would point to cardiac rather than to renal disease. There is, however, a symptom that occasionally occurs which is external to the eye, and which of itself, although I have never seen it exist in this connection without deeper trouble being also present, may be the first to attract attention. I refer to subconjunctival hæmorrhage. I have seen several cases of this kind, the last being only a short time ago.

A gentleman called at my office with several small circumscribed hæmorrhages, none of which were more than one millimetre or two millimetres in diameter, situated on both sides of the cornea in each eye. An ophthalmoscopic examination revealed retinitis albuminurica, and a further investigation disclosed the existence of chronic Bright's disease. These hæmorrhages became absorbed in the course of a few weeks and no fresh ones occurred. In this case, although a careful interrogation elicited a story which made it plain that renal trouble had existed for more than a year, and which has since terminated in death, yet the subconjunctival hæmorrhage was the first symptom to cause the patient to seek medical advice.

There is really no reason why subconjunctival hæmorrhage should not occur in this connection, as well as hæmorrhages elsewhere, oftener than it does, but I believe that as a clinical phenomenon of Bright's disease it is rare. Of the text-books on diseases of the eye but one, to my knowledge, contains any mention of it.* Its significance is serious.

There are no other external conditions of the eye that occur as the result of Bright's disease, nor do we find any change in the interior until we get to the back of the organ, and the changes here found affect the blood-vessels and nerve. These changes are optic neuritis, retinitis, and neuroretinitis, when affecting the nervous tissue, and hæmorrhage when affecting the blood-vessels.

It must be admitted that affections of the optic nerve and retina do not permit of a sharp line of demarcation being drawn in every instance, and an inquiry into the relations these two structures bear to each other will demonstrate why this is so.

After the decussation of the optic tracts in the chiasm the optic nerves continue on, one on each side, pass through the optic foramina into the orbits, and thence until they reach the posterior surface of the eye. The cranial portion—*i. e.*, the portion between the chiasm and foramen—has but one covering, the pia mater of the brain, while the orbital portion, that lying between the foramen and the eyeball, has three—the pia mater, the arachnoid, and the dura mater.* These coverings become part of the sclerotic coat on reaching the eye, and the fibers going to make up the nerve, losing their medullary sheaths, pierce the eye as axis cylinders only, and, spreading out over its interior, reach the most anterior portion of the globe, forming the retina. The retina, composed as it is of different layers, is made up of nerve elements and connective tissue. Different functions have been given to these different layers, it is true, and descriptive works on the eye give these ten layers separately and in detail; they are, nevertheless, simply the expansion of the axis cylinders of the optic nerve peculiarly modified and arranged because of the functions they have to perform, and bound together with connective tissue and a granular matter of unknown function. It is therefore impossible to say that inflammation exists in one part independent of the other. For the sake of convenience, however, we speak of inflammations of these parts as neuritis, retinitis, and neuro-retinitis.

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* Read before the New York County Medical Association, April 15, 1895.

* *Vide Treatise on the Diseases of the Eye.* By D. B. St. John Roosa.

Severe optic neuritis, uncomplicated with marked retinitis, is seldom due to nephritic trouble. Indeed, as a rule, it seems to be secondary to the retinal inflammation when happening in this connection; yet we would not feel, even in a case of simple neuritis, that we had inquired fully into the cause until an examination of the urine had been made. I believe that a number of cases of mild attacks of optic neuritis, the origin of which may seem doubtful, will have much light thrown on them by repeated examinations of the urine. At least, such has been my experience. It has often seemed to me also that, if repeated ophthalmoscopic examinations were made in patients with kidney disease, we might frequently find inflammations of the optic nerve.

Inflammation of the optic nerve may exist without any impairment of vision, and not infrequently patients apply to oculists for the relief of headaches, dizziness, etc., when a careful examination fails to reveal any refractive trouble, but the ophthalmoscope, showing optic neuritis, discloses for the first time the cause of the symptoms to be uræmic poisoning.

The most frequent and by far the most disastrous form of inflammation attacking the eyes as the result of kidney trouble is retinitis albuminurica. Optic neuritis may subside, leaving little or no evidence of trouble having existed; atrophy may result, but not of necessity. Retinitis albuminurica, on the other hand, seldom disappears without leaving its marks.

As we may find the only existing complication to be a mild neuritis, so may we also find in a few cases only a simple inflammation of the retina, characterized by a slightly hazy appearance of the fundus as viewed through the ophthalmoscope; what we most often find, however, is the retina engorged with blood, the nerve perhaps more or less swollen, the fundus plentifully besprinkled with white patches, looking, to use a borrowed expression, as if white paint had been spattered from a brush on the red background.* There is no regularity about the distribution of these spots, excepting at the macula, where they tend to assume a stellate appearance, or are grouped in radiating lines about the fovea centralis.

Taking, then, a fundus, the nerve more or less reddened and perhaps swollen, the retina congested and marked indiscriminately with the white patches, while here and there, in greater or less profusion, are found hæmorrhages varying in size from mere points to those as large as a split pea or larger, and we have presented to the observer a condition that causes him to at once think of the kidneys. True, this condition of the eye is found complicating other affections than renal—glycosuria and also some forms of cerebral disease—but in the majority of cases retinitis albuminurica is the closing chapter in Bright's disease and means death. I have qualified this statement by saying in the majority of cases, and while in my experience its occurrence with chronic Bright's does mean death, from which there is no escape, and the termination in which can be predicted with some degree of certainty as regards time, yet there is a chance when it occurs in acute kidney disease—although its occurrence in this connection is of the gravest significance—of saving life. But a favorable termination, even in acute disease, requires the most vigorous treatment. It may safely be said that retinitis albuminurica occurring as a complication or sequel in the course of either acute or chronic renal trouble is of the gravest significance. In the past twenty-two months I have had in my private practice six cases of retinitis albuminurica, not associated with pregnancy, of whom all but one have since died, and, strange as it may seem, not one of these six people knew that he had renal disease. Two were sent to me by physicians who had met them socially, and who suspected that the patients might have some cerebral trouble; one came with his daughter and thought it would be well to have his eyes examined; and the remaining three came of their own volition after fruitless journeys to opticians in town trying to get glasses for the relief of headaches or, as in one case, failing vision.

Chronic Bright's disease of the kidneys, as we all know, is a most insidious affection, creeping upon its victim, who is often unaware of its existence until some serious warning in the shape of eye symptoms or a convulsion calls attention too late to the fact that the little headaches, the dragging, lazy feelings and trifling aches of the past were due to the same cause.

In addition to the inflammatory conditions affecting the back of the eye as the result of kidney disease, we have also hæmorrhages, which are not apparently due to either neuritis or retinitis. This is a condition analogous to apoplexy and due to a weakened or diseased condition of the blood-vessels occasioned by the deficient elimination of deleterious material from the blood. The same thing can occur as the result of rheumatism or gout, or any influence capable of producing changes in the walls of the blood-vessels. We may have, either as cause or effect, inflammation of the retina; hence the terms used to designate this condition, as retinitis hæmorrhagica, retinitis apoplectica, etc. Hæmorrhage into the retina as a result of atheroma of the vessels in old age is a grave condition, inasmuch as it often precedes cerebral hæmorrhage from the same cause. So also retinal hæmorrhage occurring as the result of diseased blood-vessels in nephritis. In chronic nephritis it is a fatal symptom. It is of much graver significance than if it is the result of rheumatism or gout, for these two affections, although the external manifestation of deficient elimination, do not of necessity imply disease of any particular organ, and measures directed to the eliminative organs of the body generally, as the skin, bowels, etc., may rid the patient of this effete material, and corrected habits of life prevent its return. When, however, the poison is urea and the cause of its presence is structural change in the kidneys, the outcome, as before stated, can be predicted with certainty. Vicarious elimination under these circumstances will not subserve the same purpose for any considerable time. There has not been in my experience a more distressing incident than that which I have been called upon to witness in a number of cases, to wit: A man of forty or fifty years, with a growing family dependent on him, presents himself after he has been journeying about, for periods varying from six months to a year or longer, to the numerous so-called "refracting opticians," for the relief of headache, dizziness, etc., sometimes, too, on the advice of his family physician, and to find on examination a trifling refractive error, easily remedied, but in addition retinitis albuminurica, or hæmorrhages in the fundus, which further examination shows to be due to chronic Bright's disease. In a very short time—two years or less—this man will be dead. Still another symptom occurs in connection with kidney trouble, the pathology of which is not fully understood. I refer to amaurosis nephritica. In this condition sudden and complete blindness occurs without any apparent change in the eye itself, and is the result of the action of urea on the visual centers, the generally accepted belief being that it is due to cerebral anæmia. Be this as it may, while it is a grave symptom, its effect on vision is only temporary, and its occurrence is not followed by the same fatality that follows retinitis. It occurs most often in acute disease and admits of complete recovery. Cases have been reported where the two conditions—retinitis albuminurica and amaurosis nephritica—have co-existed, and here, of course, the prognosis would be different.

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* *Treatise on the Diseases of the Eye.* Roosa.

* Amblyopia Brightii *versus* Retinitis Albuminurica. By D. C. Cocks, M. D. *Medical News*, March 24, 1888.

We have, then, two classes of symptoms manifesting themselves in the eye, both indicative of kidney trouble; one coexisting with structural changes in the eye-ground, characterized by inflammation, fatty degeneration of nerve tissue, and hæmorrhages, which, should the patient survive, subsides with more or less atrophy, leaving defective vision; the other, characterized by sudden and complete blindness, without structural change, subsides without affecting vision. The first, when occurring in acute kidney disease, and especially in the progress of the exanthemata and in pregnancy, may recover completely; but, happening in the course of chronic kidney disease, of whatever variety, means in the majority of cases—say, eighty per cent.—death within two years.

And now in this connection let us consider two cases that have presented themselves to me within the past few months, from which we can learn a lesson.

CASE I.—Mr. N., aged forty-nine years, came to my office, August 22, 1894, with his daughter, who was under treatment for refractive trouble. Mr. N. had worn glasses for two or three years, but of late had had a most uncomfortable feeling in his head, and the opticians to whom he had applied had changed his glasses several times without giving him relief, until now he thought he had better have his eyes examined. My notes are as follows: Patient, a large, portly man, looking very robust, complains of headache and dizziness. Smokes and drinks excessively. Vision = $\frac{20}{15}$; accepts no glass. Reads Jaeger 1 from 8 to 20 inches with + 2 D. S. Ophthalmoscopic examination: Right eye, nerve grayish and swollen. Several small hæmorrhages scattered over fundus. Along the blood-vessel, extending downward and outward about two disc diameters from the nerve, is a large hæmorrhage and a large white plaque such as we find in retinitis albuminurica. Macular region unaffected. Left eye normal.

August 25th.—Same characteristic appearance near macula in left eye. Referred with note to family physician, Dr. R., with serious prognosis. Dr. R. reports: Urine, specific gravity, 1·024; quantity large, and abundance of albumin.

September 9th.—Vision still $\frac{20}{15}$.

16th.—Vision, $\frac{20}{15}$. Still complains of headache. No new hæmorrhages, but marked neuritis in both eyes. Characteristic white plaques in left eye.

I did not see this patient again, but under date of April 5, 1895, Dr. R. writes me as follows:

"DEAR DR. VAN FLEET: I am glad to be able to answer your question in the affirmative. [I had written to ask if Mr. N. was still alive.] I rarely see Mr. N. now, and only occasionally do I find albumin in his urine in quantity, although he always complains of his heart. Very truly yours,

"M. R. R."

I do not imagine that the patient had had his ocular trouble long when I saw him in August, 1894. At least there was no marked change in his fundus, and active treatment has improved his renal defect. I have not seen him since September, a period of seven months, and I can not say what the condition of his eye-ground may be at present, but, considering the fact that he has chronic Bright's, and that his heart troubles him, which, I take it, means that it no longer compensates, and I venture to predict that the rule will hold good in his case—the rule being, as before stated, that in the majority of cases the occurrence of retinitis albuminurica in the course of chronic kidney disease means death in two years or less. I sincerely hope that Mr. N. will prove the rule by being an exception.

In contrast with the above I will narrate a second and more recent case:

CASE II.—Mr. H., aged forty-two years. Headache for past two years. A year ago, while taking his annual vacation deer-shooting in the Adirondacks, he noticed that his vision was not as acute as formerly. On his return to town he consulted an optician, who prescribed glasses. After the first optician had changed his glasses several times, he consulted a second, then a third, and, after a journey about the city, visiting a number of opticians in the course of the year, he finally consulted an oculist. Examination revealed defective vision equaling $\frac{20}{50}$, marked neuroretinitis albuminurica, with profuse hæmorrhages. I referred him to his family physician, who, after an examination of his urine, instituted vigorous treatment. I saw the patient several times after this, but was unable to note any change in the ocular condition. On March 22, 1895, four months after his first visit to me, while doing his ordinary work, the patient was seized with a convulsion and died in about an hour.

Retinitis albuminurica, or any affection of the eye due to renal disease, indicates that the body is saturated with urea, and clinical experience has taught us that death is imminent. Yet, notwithstanding its grave import, we must not lose sight of the fact that a few cases do end in recovery. Life may be saved, but the changes that have taken place in the eye leave their marks. Occurring at the macular region, where usually vision is most perfect, these changes will most certainly leave impaired vision, perhaps blindness. Obviously, if vision is to be saved and life prolonged, it is necessary that the condition should be recognized early in its course and appropriate treatment inaugurated. Spectacles may cure many reflex phenomena, but Bright's disease is not one of them. And yet, in the face of these terrible consequences, we allow to go on in our city without challenge a most iniquitous system, an openly advertised violation of the law.

From the district attorney of the city and county of New York I learn "that the laws regulating the practice of medicine in this city are rather complicated and in an uncertain condition," which, *if true*, is a deplorable condition of affairs, and, in view of the fact that we live in an advanced age, that we spend large sums of money in support of law-making and law-interpreting machines, and that privileges of medical practice placed in the hands of charlatans and quacks entail on the two million inhabitants of this great metropolis untold misery, suffering, and death, is a crying outrage.

I believe the fact to be that there are laws enough, but that they are not efficiently managed. The law tells who shall practice medicine and provides for the punishment of violators thereof. Druggists have been punished for counter prescribing, but no attention has thus far been given to opticians practicing illegally. Objection may be urged that opticians in giving glasses are not practicing medicine, but the objection is not tenable. Let us suppose two illustrations: A person goes to a druggist and says, "I am suffering from shortness of breath which I think is due to heart trouble." The druggist listens to the patient's heart, tells him that he has heart trouble, and prescribes digitalis or some other remedy. He would undoubtedly render himself liable for violation of the laws governing medical practice.

Let us consider the second illustration: A person goes to an optician. He may have Bright's disease, he may have some incipient nervous trouble, but he says to the optician, "I suffer from headache, dizziness, fullness in the head, and a long list of symptoms, and I think my eyes are at fault." The optician examines his eyes and gives him glasses. Is he not practicing medicine illegally? The druggist may be as capable as a physician to listen to the person's heart and to give the proper dose of digitalis; but the druggist has not had the training necessary to enable him to judge of the possible connection between the shortness of breath and the heart lesion, and he may or may not give the proper remedy. The same applies to the optician; the work required in this connection does not consist in the successive placing before a patient's eyes of a series of lenses, in order to ascertain which lens gives the best vision. It requires a knowledge not only of optics, but of medicine as well, to arrive at a proper conclusion of the relation of cause and effect. It may be true that in a given case the trouble is due to a refractive error easily relieved with glasses, yet, even so, this subject is one of growing importance, and requires of the practitioner a knowledge that can only be obtained, as in all other branches of medicine, by careful and painstaking clinical research. The importance of this department may be better appreciated when we consider that of the 10,319 eye patients who applied for treatment at the Manhattan Eye and Ear Hospital in 1893, 32·18 per cent. were cases requiring glasses, and for the year ending September 30, 1894, out of 11,201 eye patients, the percentage was 34·29 per cent., an increase of over two per cent. When we consider that twenty years ago the percentage of people requiring glasses was twelve per cent.* and that now it is over thirty-four per cent. and increasing yearly, we must realize that this is too important a branch of medicine to be in the hands of unskilled and often uneducated opticians. We find in this city unauthorized individuals teaching jewelers how to fit glasses to eyes, giving them a certificate of proficiency after a few months of instructions. Everywhere along the principal avenues we find these certificates displayed in the windows of jewelry stores, accompanied perhaps with the sign "graduate optician," whatever that may mean. So far as I know there is no legally incorporated institution with power to bestow such a title. It surely is a perverted interpretation of the law which does not include these people in the class of violators thereof. When physicians receive in one mail the cards of the professional abortionist, and in the other the advertisement and coupons of the "refracting optician," who not only offers to give you a report of cases you send him, but also as an inducement will "refract" the members of your family at reduced rates or gratis, surely charlatanry runs riot. And yet the prosecuting attorney of the city and county of New York says that "the laws governing medical practice are complicated and uncertain." Certainly the evidence is easily obtained.

Laws made in accordance with the desires of the people and for their benefit are easily enforced, but laws for the benefit of a few individuals can not be, and ought not to be, enforced. It is therefore not wise or just to speak of the rights of the medical profession. We have no rights, no privileges not accorded to other citizens, excepting where exemption from certain duties is accorded us because of the peculiar relations we hold to the public, and in these exemptions the consideration is the benefit to the community. But we are guardians, in a measure, of the public health, and as such should insist on the enactment of laws for public protection, and we should insist also on their enforcement. It should be—indeed I think it is—a criminal offense for any one to prescribe a medicine, a mechanical appliance, or any substance directed to the cure or relief of disease or deformity unless he shall first comply with the laws governing medical practice and be thoroughly qualified.

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* Cohn's statistics.

In conclusion, let me bespeak the co-operation of physicians generally against the "refracting optician," not for the benefit of the oculist, who does fairly well as it is, but for the benefit of the confiding public, which, as the showman remarked, delights in being humbugged. The people have made laws for their protection which at the same time benefit the doctors, and in return have a right to ask that the medical profession see that these laws are enforced.

April 15, 1895.

DOUBLE CASTRATION FOR HYPERTROPHY OF THE PROSTATE.

A PROTEST.*

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During the past two years two new operations for the relief of enlarged prostate have been suggested, both of these having the same object in view—namely, the removal of the obstruction to urination by causing atrophy of the prostate.

In 1893, Bier, of Vienna, published the results obtained in three cases of prostatic hypertrophy in which he had ligated the internal iliac artery, and Willy Meyer, of this city, has reported the results of three cases in which he performed the same operation. The results of these operators are far from being an encouragement to others to adopt this mode of treatment.

Dr. J. W. White, of Philadelphia, in a paper read before the American Surgical Association in 1893, suggested the possibility of relieving obstructive disease of the prostate by performing double castration. He based his suggestion upon the results of experiments made at his request by Dr. Kirby, of the University of Pennsylvania, upon dogs, which showed that the removal of both testes in these animals was followed by a rapid shrinkage in the size of the prostate. Dr. White in this paper stated that he had not had the courage of his convictions, and advanced the suggestion as a reasonable possibility. In the same year Ramm, of Copenhagen, working independently of White, published an account of a case of prostatic hypertrophy in which he had performed double castration, and in 1894 he reported a second case treated by this method. The publication of Dr. White's paper has attracted much attention and caused considerable criticism. It has been noticed in the principal medical journals both here and abroad.

In a later communication published in the *Union médicale* Dr. White has reaffirmed his position with more positiveness, and several surgeons during the past year have published the results of cases of prostatic hypertrophy treated by double castration.

I am in possession of facts which lead me to believe that this operation has been performed by other surgeons who have not as yet published their results, and it is likely that its value as a remedial measure will be thoroughly tested. It is difficult to form an accurate estimate of the results that have followed the performance of this operation in the cases thus far reported, but the facts stated in these reports are far from convincing me that the operation is of great value, for the data upon which such an estimate should be based are almost entirely wanting in these reports, as I shall presently show. If the operation is to become recognized as a justifiable method of treatment for the relief of prostatic hypertrophy, it is very important that those who perform it during the period of experimentation should be careful to record fully the facts in each case upon which a true estimate of its value can be based.

Before entering upon a criticism of the present clinical aspect of this operation let me first present a very brief *résumé* of the principal facts which have been brought out by the discussion of this subject in the journals.

In an article published in the October number of the *Annales des maladies des organes génito-urinaires* Launois has called attention to the close relationship existing between the development of the prostate and that of the testicle, and has shown that when the development of either testicle is arrested there is a corresponding arrest of development in the prostate upon the same side. This is in agreement with the researches of Godard, published between 1856 and 1860, and it seems probable that in nearly all, if not in all, cases where one of the testes in its descent fails to reach the normal position in the scrotum, the retained gland is smaller and undergoes certain atrophic changes. In these cases of unilateral ectopia the prostate upon the affected side does not enlarge at puberty, and remains small and apparently atrophied. When both testes are retained, either within the abdomen or in the inguinal canal, the entire prostate is undeveloped and is much smaller than normal.

The following cases may be added to those which have been reported by Launois:

Case I.—Patient, twenty-six years of age, referred to me by Dr. Stafford, of Portchester, N. Y. Right side of the scrotum empty. The testicle can be felt in the right inguinal region as a small tumor, excessively painful. Right side of the prostate one half smaller than the left. Right testis removed in Bellevue Hospital in April, 1894.

Case II.—M., thirty-seven years of age, admitted to Bellevue Hospital on December 22, 1894. Scrotal sac empty. A large, soft tumor in right inguinal region, consisting of testicle and omental hernia. In the left inguinal region a very small testicle can be felt just outside the internal ring. The prostate is apparently of about half its normal size. Operation performed on January 25, 1895, upon the right side only. A small, atrophied testicle was removed, the omental hernia reduced, and the internal ring closed.

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* Read before the Society of Alumni of Bellevue Hospital, January 2, 1895.

It is likewise true that in cases where one or both testes are undeveloped the prostate is not fully developed. Launois quotes such a case reported by Godard, and I have observed the following cases during the past year:

CASE I.—W., thirty-two years of age, admitted to Bellevue Hospital on March 19, 1894. Both testes very small, about as large as a those of a boy at puberty. No sexual desire. The prostate in this case was easily recognized by the finger in the rectum, but seemed to be much smaller than normal.

CASE II.—Patient, aged thirty-five years, admitted to Bellevue Hospital on December 30, 1894. He had tubercular disease of the left epididymis of fifteen months' duration. Right testis very small, not larger than a young boy's. Right side of prostate distinctly smaller than left.

Launois quotes Godard to show that when both testes are congenitally absent the prostate is likewise not developed.

While these observations show that there is a close relation between the development of the prostate and that of the testis, it can not be maintained that they have a direct bearing upon the question as to the effect of castration upon the prostate in adults, and it is not fair to assume that because there is atrophy as the result of developmental defects, atrophy will also occur in an hypertrophied prostate by removal of the normal testicle.

Launois has further called attention to certain interesting facts bearing on the effect of castration upon the normal prostate. His own experiments correspond with those conducted by Dr. White and Dr. Kirby, that the prostate invariably shrinks as the result of castration in animals. He examined the genital organs in bulls, sheep, and horses, and found that in all cases there was marked atrophy of the prostate after castration. In a number of dissections in bulls and oxen he always found the same result—namely, that the prostate in the castrated animal was small and hard, and that the vesiculæ seminales were reduced to about a quarter of their normal volume.

Observations which show the result of castration upon the prostate in man are not numerous, but those cases which have been examined all go to show that after the removal of the testicles the prostate sooner or later undergoes shrinkage. Godard, in his celebrated memoir, gives us the result of a post-mortem examination made upon a eunuch, and shows that the prostate was completely atrophied and of about the size of that of an infant. Gruber, quoted by White, has observed a very marked atrophy of the prostate in a man sixty-five years of age, who had been castrated when a youth. Bilharz has, according to Launois, confirmed these observations by the examination of two Ethiopian eunuchs. Launois himself gives an account of a eunuch examined in Paris in December, 1893, who had been deprived of his external genitals at the age of eleven. At this time the patient was fifty-six years of age. A rectal examination in this case failed to detect any trace of the prostate.

I have been able to confirm these facts in a measure, and desire to call attention to the following cases, which are in point:

CASE I.—M., thirty-five years of age; left testicle removed on account of advanced tubercular disease in 1889, at Bellevue Hospital. Right testicle removed at patient's urgent request in 1891, for neuralgia. An examination made in November, 1893, showed the prostate to be very small. The apex consisted of a hard ring; the lateral lobes seemed to be about equal in size and very much smaller than normal.

CASE II.—Patient admitted to Bellevue Hospital in December, 1894, with perineal fistula. The right testis had been removed two years previously during an operation for the radical cure of hernia. The right side of the prostate was distinctly smaller than the left.

We may now turn to consider the cases in which castration has been performed for the relief of enlarged prostate.

CASE I.—Reported by Ramm. Prostatic hypertrophy in a man seventy-three years of age. Dysuria for fifteen years. Prostate of about the size of an apple. The patient had not been catheterized for two years. Urinates every hour; does not empty his bladder; the prostate could only be overridden by a catheter when two fingers were introduced into the rectum. The patient had an advanced chronic cystitis; the urine was foul and contained blood. Operation, April 25, 1893; double castration. Three days after the operation the size of the prostate was appreciably diminished, and this diminution continued. At the end of some months the patient passed water twice at night and three or four times during the day.

CASE II.—Reported by Ramm. Prostatic hypertrophy in a man in his sixty-eighth year. In 1877 the patient was treated for urinary retention. Since 1887 he had used a Nélaton catheter, sometimes introducing it two or three times an hour. In 1892 suprapubic puncture was made to relieve retention. On his admission to the hospital the patient's bladder was distended nearly to the umbilicus, and the catheter was passed with great difficulty. Operation, April 25, 1894. The night after the operation the patient passed eighty cubic centimetres of urine in a jet. The prostate diminished rapidly in volume. On May 6th there was marked diminution in its size. The following week the patient passed water seventeen times in twenty-four hours. Two months after the operation he was obliged to urinate four or five times daily and once at night. The prostate feels soft.

CASES III, IV, AND V.—The three cases of Dr. F. L. Hayes, who was the first to perform this operation in America, are of no scientific value, owing to the very imperfect reports which he gives. The fact that he operated in three cases is about all the information which he has seen fit to give. In his letter published in the *Buffalo Medical and Surgical Journal* the following facts appear:

1. Double castration in a case of prostatic hypertrophy where the symptoms had lasted two years. He announces that eighty-four days after the operation "the patient is actually cured."

2. This he described as a desperate case, complicated by acute cystitis and the morphine habit. The catheter was inserted every two hours. Operation, double castration. He states that the cystitis disappeared after the operation and the patient passed urine spontaneously. At the time of writing he used the catheter every four or five hours. He also states that in this case the morphine habit was cured, and the patient's general condition at the time of writing was good.

3. This patient was operated on fourteen days prior to the time it was reported. He states that catheterism was almost impossible, owing to the abnormal development of the prostate. The result in this case was not stated.

Case VI.—By Dr. Fremont Smith. This was fully reported to the Genito-urinary Section of the New York Academy of Medicine last spring. The patient was an old man with prostatic hypertrophy and cystitis, general infection, and threatened uræmia. Double castration was performed; the catheter was used twice daily at first. Twelve weeks later the patient reported to Dr. Smith that he had gained forty-five pounds in weight, and had no symptoms of cystitis.

Case VII.—Reported by Dr. J. W. White. Hypertrophy of the prostate in a patient sixty-nine years of age; prostate very large, of the size of a small orange. The patient had not passed water except by catheter for some years. Urine very foul and ammoniacal, loaded with pus, and sometimes containing blood. Operation, double castration, performed January 31, 1894. Fourteen weeks later the patient could pass water through the urethra. Rectal examination showed a great diminution in the size of the prostate, which was nearly normal. A catheter introduced before the operation showed the length of the urethra to be twenty-six centimetres; its length at the time the report was made was only twenty centimetres. The introduction of the catheter was easy and painless.

Case VIII.—Reported by Mayer and Haenal in the *Centralblatt für die Krankheiten der Harn- und Sexualorgane*, August 23, 1894. Operation performed May 16, 1894, on a man about seventy years of age, with a much enlarged prostate, with cystitis and ammoniacal urine, tenesmus, and toxæmia, in whom catheterism was becoming impossible on account of the pain it produced. There were several ounces of residual urine. Some improvement was noted within a few days after the operation, and in two weeks the tonicity of the bladder began to return. In three weeks the urine was nearly normal. In six weeks the prostate had shrunk to its proper dimensions, and the bladder emptied itself completely, no catheter being required. Urination was performed only once every four hours; the urine was acid in reaction.

Case IX.—Moullin, in the *Medical Press and Circular*, September 19, 1894, reports the case of a man about eighty-one years of age with complete retention due to prostatic enlargement of the size of an orange, with cystitis and failure in general health, in whom catheterization was impossible, all attempts being followed by hæmorrhage. Suprapubic aspiration was necessary on several occasions. After double castration the improvement was almost immediate. The prostate was appreciably smaller in ten days, and in three weeks it had practically disappeared. The bladder had regained power. The urine was nearly normal.

Case X.—Dr. J. I. Thomas, in the *Pittsburgh Medical Review*, September, 1894, reports a case in which castration in a patient, sixty-five years of age, who had had symptoms of prostatic hypertrophy for fifteen years, had caused "considerable improvement." Urination, which had formerly been very frequent, was now necessary but three times daily. No further details are given.

Case XI.—Dr. B. M. Ricketts, in the *Cincinnati Lancet-Clinic*, December 1, 1894, reports a case in which he performed this operation in a patient about seventy-four years of age who left the hospital at the end of the sixth day. On the second day after the operation the patient could urinate with greater ease, and the pain was slight. He could sleep four hours at a time during the night, whereas formerly he had been obliged to urinate every hour, and had been urinating thirty times daily. His condition had continued to improve.

In studying these cases there are several points which at once attract attention. In the cases reported we have very little information given as to the pathological conditions present in the prostate. The size of the prostate, as ascertained by rectal examination, is sometimes given, and in White's case the length of the urethra. The existence of a cystitis is noted in most cases, but we can form very little idea from the reports as to the degree of cystitis, or as to the portion of the prostate enlarged; as to the condition of the vesical muscle, or as to the degree of vesical atony or hypertrophy present. Without these facts it is impossible to estimate the value of the results obtained. In cases of advanced hypertrophy of the prostate there are other factors to be considered as to the method of treatment to be adopted besides the mechanical obstruction. While I do not believe that there are sclerotic changes in the vessels of the bladder in all cases of prostatic hypertrophy, as maintained by Guyon, there certainly are in some; and in these, atrophic changes in the prostate produced by castration would not cure the diseased condition of the vesical walls.

Secondly, in all cases of vesical atony, removal of the prostate or its atrophy would not restore the tonicity of the vesical muscle, and in such cases it would still be necessary to continue the use of the catheter after the operation, in order to prevent cystitis.

Another point which strikes us in the cases reported above is the very rapid diminution which occurred in the size of the prostate after the operation, and which seems to have been regarded by the various observers as the result of prostatic atrophy. Marked diminution in the size of the prostate is not an unusual feature in cases of prostatic hypertrophy associated with retention, after the retention has been relieved and its recurrence prevented by careful and skillful use of the catheter. I have met with many cases of prostatic hypertrophy and retention where rest in bed, fluid diet, and careful aseptic use of the catheter so reduced the prostatic œdema as to result within a few days in very easy catheterism, and in many instances in voluntary micturition.

I am ready to admit, for the sake of argument, that double castration may cause a shrinkage in the prostate, but I can not believe that the atrophy will be so marked as to be clearly appreciated within a few days or weeks after the operation, in spite of Dr. White's experiments on dogs and the results obtained in the cases thus far reported. Atrophy of the prostate after castration, if it occurs, must be the result of trophic changes, and it does not seem possible that the shrinkage would be so rapid as is alleged. The diminution in the size of the prostate induced in these cases, and the voluntary evacuation of the bladder are, I believe, more likely to be the result of rest in bed and careful catheterism than of atrophy.

I do not care to speak here of the repugnance to this operation which many patients would naturally feel even at a period of life when the sexual question is not an important factor. There is great danger, I fear, however, that the operation will be performed too often and without due deliberation, owing to the enthusiastic way in which those who have performed it have urged its merits. I am convinced that equally good results are to be obtained by dilatation of the prostatic urethra and perineal drainage as from castration; and in the majority of cases of advanced prostatic hypertrophy requiring operation, I should prefer the more certain method of treatment by prostatectomy to this uncertain though much easier operation.

Castration in prostatic hypertrophy can at present be offered to a patient only as a physiological experiment; and while I do not object to scientific experiments, I believe that they should be conducted in a scientific manner, and that the reports of these experiments should be given in detail. I hope that those who report cases in the future will give more fully and in greater detail the history and condition of each case both before and after the operation, and in addition, that they will give careful note of (1) the "catheter history" of the patient; (2) the effect of rest and regular catheterism prior to the operation; (3) the portion of the prostate enlarged; (4) the condition of the vesical muscle; (5) the amount of residual urine; and (6) the length of the urethra, taken at various times.

5 West Fifty-eighth Street.

INOCULATION INTO ANIMALS
AS THE ONLY DECISIVE METHOD FOR THE BIOLOGICAL DIAGNOSIS OF TRUE DIPHTHERIA.
ILLUSTRATED BY THREE CASES.[*]

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Before submitting the suggestion implied in the title of this paper, I shall first place in evidence the cases that were in reality the starting point for the present communication:

On January 28th I was called to see Hannah S., aged six years, who, according to her mother's statement, had complained of chilliness a few days before, of pains in the side and front of chest, of severe headache, and a painful stiff neck. She was said to have had some fever, severe coughing spells, complete anorexia and constipation, but no vomiting. The family resides in my immediate neighborhood, hence I was in the position to know that no severe infectious diseases, except some cases of measles, were to be found near the residence. The last case of diphtheria, near by, had occurred three years ago, and remained the only one on record. There is a well on the premises, but its water is used exclusively for manufacturing purposes, the family supply being furnished by the city water works. The house is new, had no previous occupants, and does not show any sanitary defects.

My examination of the little patient elicited the following: As to subjective symptoms, there were severe pains in the neck, in left side of chest, and behind the sternum, very much aggravated by the cough, which was dry, irritating, almost continuous; she also complained of headache and aches in her limbs. Axillary temperature, 102·5°; pulse rapid, the exact rate not having been recorded. No delirium or stupor. No rhinitis. The inspection of the throat revealed a simple angina, with swollen tonsils and general hyperæmia; none of the tonsillar crypts appeared plugged. There was some lymphadenitis on both sides. The voice was clear. Some broncho-pneumonic patches were made out on the left side. Having satisfied myself that I was confronted by a case of streptococcous angina, I satisfied the parents by rendering a provisional diagnosis of *grippe*. The other three children appeared to be perfectly sound. On the next day the picture presented by the patient was much the same, except that the cough seemed to be harsher, more ringing, accompanied by a peculiar rattling sound in the trachea. A suspicion of having possibly to deal with a case of pseudo-membranous croup flashed upon me. I at once examined the other children, and found in the two next elder ones a simple hyperæmic condition of the throat, with tonsils slightly swollen and some lymphadenitis. The baby, four months old, appeared normal. On that day I made swab cultures of the three throats. The report received from the health department on January 30th, and the same, in more amplified form, on February 11th, read as follows:

No. 124, Hannah S., not diphtheria. Staphylococci and streptococci in great numbers.

No. 123, Louisa S., true diphtheria. *Bacillus diphtheriæ* with great numbers of staphylococci and streptococci.

No. 125, Rudolph S., the same as No. 123.

To say that I was amazed would hardly express my feelings at the receipt of this report. I proceeded without delay to have the house placarded and to isolate the youngest child, which I need not mention any further, as it escaped unharmed.

On January 31st, Hannah showed signs of improvement, her temperature ranging from 101° in the morning to 100° at 10.30 P. M.; pulse, 106 to 120. Louisa, aged five years, was apparently well. Rudolph, aged three years, seemed to be somewhat out of sorts in the morning about nine, but nothing unusual was noticeable. At 2 P. M. I found him on his bed, delirious, tossing about wildly, picking at the bedclothes, the very picture of some acute toxæmia. Axillary temperature, 103·5°; pulse, 130. The throat was simply congested, the lymphadenitis more pronounced on both sides, the cough dry and harassing, without expectoration. A few broncho-pneumonic patches were made out. On the eve of February 1st, Louisa was taken with severe vomiting after too hearty a supper. Her temperature was not over 102° (the record in her case could not be found). She complained of the same pain in the sternal region of the chest as her elder sister, but no pulmonary lesion was discoverable. The throat had exactly the same appearance as in the other two cases. The lymphadenitis was very slight.

The subsequent course in the three cases was the following:

Hannah's temperature registered normal on February 1st except that 99·4° was recorded by the nurse about midday. This record was kept up until February 10th, showing but slight variations from normal; if anything, there seemed to be a tendency to subnormal—*i. e.*, 98°. The pulse rate diminished gradually from 118 to 75. The lung cleared up, the throat symptoms disappeared, and the child was not left any the worse for the attack, except for a slight degree of anæmia.

Louisa was sick but two days; her temperature returned to normal in that short time, and all the other symptoms cleared up completely.

Rudolph's case proved far more refractory. His temperature was irregular, but constantly above normal through the entire twenty-four hours; it ranged between 99° and 100° in the morning, to 102° and 103·5° in the evening. On February 10th, 98·2° was registered, and after that the temperature remained normal. The pulse varied between 130 and a rate which defied any attempt at actual count, but I have counted, on several occasions, as many as 160 beats. On February 2d my attention was called to a discharge from the boy's left ear. I washed it out with water and peroxide of hydrogen, cleared it out with a Politzer's bag, but succeeded in getting only some fresh blood; no purulent material made its appearance at any time. After a few days of treatment the discharge subsided. An aural examination on March 10th revealed some cerumen, which was removed. A further examination was rendered very difficult by the high degree of belligerency displayed by the little fellow. Still, I thought I could discover a perforation in the superior posterior portion of the tympanic membrane. The mother then stated that the patient had had a discharge from one of his ears about a year ago.

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[*] Read by invitation before the St. Louis City Hospital Medical Society, March 21, 1895.

From the day of the disappearance of the fever, all three patients made a rapid and complete recovery. No albuminuria or paralysis has ever occurred.

The reports of the health department on the swab cultures made after the one spoken of above, were the following:

	Hannah.	Louisa.	Rudolph.
February 12th.....	Not diphtheria.	True diphtheria.	True diphtheria.
February 25th.....	" "	Not diphtheria	" "
March 4th........	....	....	" "
March 17th.......	....	....	" "

The experimental work bearing upon the bacteriological features of the reported cases was done by Dr. William N. Beggs, pathologist to the St. Louis Medical College, to whom I express my thanks. The methods and results were the following:

The impure blood-serum culture was plated out, and from the plate a number of pure cultures were made in glycerin-agar, in agar, in bouillon, and on potato. The first three showed the characteristic growths of the Klebs-Loeffler bacillus, its morphology having been established by numerous cover-glass preparations. The cultures on potato were invisible, but demonstrable by the microscope. On March 15th, a rabbit was tracheotomized, and the tracheal mucous membrane scarified; some of the pure culture was rubbed into the denuded surface. On March 18th a guinea-pig received subcutaneous inoculations with two different cultures at two different places of its abdomen. The animals are alive, and never presented a sign of general disturbance. The tracheotomy wound of the rabbit healed kindly; and the guinea-pig showed just a very slight elevation at the places of inoculation, not any more than could be accounted for by the operative procedure. For lack of time no attempt was made at observation of the cultural behavior of the bacillus.

These three cases, while differing in intensity, give plain clinical evidence of a similar pathogenesis. In the anticulture days they might have passed as streptococcous angina and toxæmia, or possibly as infections by that still somewhat enigmatical entity, the *Bacillus influenzæ*. The ringing cough and the rattling in the trachea of the oldest child, which were the starting point of further investigation leading up to this communication, would have been taken notice of, anxiously watched, and their partial disappearance on the very next day hailed with satisfaction. As the Klebs-Loeffler bacillus has been demonstrated by Martin in sixty-seven per cent., and by Park in eighty per cent. of the cases of pseudo-membranous croup examined, my fears were not groundless. Still, impressed as I was with the importance of the recently introduced diagnostic method I, no doubt, fell a victim to suspicion much more readily. The report of the health department on the first swab cultures proved, or seemed to prove, my apprehension causeless with regard to the suspected case, while pointing to imminent danger in quite unexpected quarters. You can see at a glance that the clinical picture in the cases reported was diametrically opposed to the result of the bacteriological examination. True diphtheria, the diphtheria of Bretonneau, without a trace of a fibrinous exudate, without even a plugged follicle, is unknown. Accepting this, we must account for the presence of the Klebs-Loeffler bacillus, the bacillus of true diphtheria. I should go far beyond the scope of this paper if I entered upon the consideration of the controversy as to the pathogenesis of this disease. The work of the physician and the sanitarian is pre-eminently practical. They must face conditions, not theories, hence a certain amount of dogmatism must necessarily form the basis of their labors. They are the beneficiaries of the workers on the arena of scientific research, and whatever the majority of these workers put forth as an ascertained principle or truth must prevail. Since Klebs described and Loeffler announced his success in isolating the bacillus that bears their joined names the literature on this subject has assumed enormous proportions. No matter what our individual predilection may be, we can not deny that the incongruous mass of conflicting evidence will not permit us to take a bold, unassailable stand with regard to the true pathogenesis of Bretonneau's diphtheria. The Klebs-Loeffler bacillus had to run just recently the gantlet of severe though dispassionate criticism; the result of the battle can not possibly be foreseen as yet. The majority of scientists, however, still hold to the opinion that this organism is the essential diphtheria-producing agent; consequently there is nothing left to us but to acquiesce in their dictum, and to shape our course accordingly. Once having agreed upon the causal relation between the bacillus and the disease, we must direct our efforts not only upon an attempt at saving the lives of the afflicted, but also at checking the dissemination of the disease, obscure as the mode of this dissemination may appear in the light of our present knowledge and past experience. To achieve the latter end we must make in every case an impregnable diagnosis. In fully developed cases showing clearly the entire complex of symptoms of the disease, the practiced clinician will have no difficulty in arriving at a diagnosis in a purely clinical way. But during the earlier phases of the disease, and in cases of doubtful nature, the bacteriological findings not only complete the clinical picture but antedate its full development. An easy method of assisting the practitioner in arriving at an early diagnosis has been devised by the Board of Health of New York city, and the same has been introduced since in our own city. This method is based upon the demonstration of the specific bacillus, principally by its morphological, less by its biological peculiarities. Let us assume that every known biological test, except inoculation into animals, was applied, and a bacillus demonstrated identical with the Klebs-Loeffler bacillus, or nearly so, both morphologically and biologically, does this render the diagnosis of true diphtheria incontrovertible? I think not, for the literature is teeming with evidence that a micro-organism exists whose morphology and biology stamp it a genuine *alter ego* of the *Bacillus diphtheriæ*, except as to virulence. Here are some of the data:

Loeffler, in his second communication on diphtheria, reported his success in demonstrating the Klebs bacillus in ten cases of diphtheria, and in isolating from the same series of cases a non-pathogenic bacillus resembling the former very closely. He also found the same micro-organism in the throat of a healthy child. He held this to be a bacillus *sui generis*, and called it the "pseudo-diphtheritic" bacillus. The same organism has been demonstrated by von Hoffmann and Wellenhof in 26 oral cavities out of 45 cases examined, in 1 case of diphtheria, 3 cases of measles, 6 of scarlet fever, and in 3 healthy individuals; by Babes, in cases of trachoma; by Weisser, in ulcers; by Zarnikow, on the surface of various mucous membranes; by Abbott, in 4 out of 53 patients suffering with a variety of simple, non-diphtheritic troubles; by Koplik, in 4 cases of catarrhal angina; by Beck, in 16 cases of diphtheria out of 51 examined; by Escherich, in 11 cases of non-diphtheritic affections; by Roux and Yersin, in 15 out of 45 cases of children in the Paris hospitals; in 26 out of 59 cases of healthy children in a village school at the seashore; in 2 out of 6 cases of simple anginas; in 5 out of 7 cases of measles; by Park, in 27 out of 330 cases of healthy persons.

This is, I think, a sufficiently strong array of data to allay all doubt as to the existence of a micro-organism that crosses our path in a most surprising manner clothed in the guise of the Klebs-Loeffler bacillus. Efforts have been made in the direction of differentiation between the two, morphologically as well as biologically, principally by Loeffler, von Hoffmann, Roux and Yersin, Martin, Zarnikow, Escherich. In the following I have attempted to condense the results of these efforts in a tabulated form:

I. As to morphology, the pseudo-diphtheritic bacillus is said to be:

1. Shorter and thicker.
2. More frequently club-shaped at the extremities.

II. As to biology:

1. Its colonies on blood serum are but few—from one to four.
2. Its cultures in bouillon and agar are more abundant.
3. It grows less abundantly in a vacuum.
4. Its cultures continue to grow at a temperature of 20° and 22° C., at which the true bacillus grows very slowly.
5. Its isolated colonies show more distinctly indentations in their outline.
6. The colonies on blood serum, agar, and gelatin are whiter, and those on blood serum appear more moist.
7. The pseudo-diphtheritic bacilli are seen to be arranged in their colonies either parallel to each other or converging to one point, like the spikes of a wheel, while the Klebs-Loeffler are found in irregular heaps, or lying crosswise.
8. Frequently a peculiar pigmentation is produced in old agar stab cultures of the pseudo-diphtheritic bacillus, the agar turning brown to brownish black from above downward, similar to a well-smoked meerschaum holder.
9. Its cultures in bouillon become acid and then alkaline, just as those of the true bacillus; but the change occurs much sooner.
10. The pseudo-diphtheritic bacillus is absolutely non-virulent to the animal that is so exquisitely susceptible to the diphtheria virus, the guinea-pig.

If we exclude the point pertaining to the atoxic nature of the pseudo-diphtheritic bacillus, we must admit that all the points of differentiation are based on comparative tests, the decision in every instance being left entirely to the subjective impression of the individual observer. No allowance for error of judgment or unintentional bias is made. In speaking of the differential points brought out by Loeffler and von Hoffmann, Baumgarten (1) characterizes them as "*graduell und z. Th. ziemlich difficiler Natur*," and questions the constancy of their occurrence. According to him it would have been rather surprising if the different behavior of the two organisms on agar should have escaped Loeffler's attention. He also mentions that Fluegge, in direct opposition to von Hoffmann, designates agar as an exquisite culture medium for the Klebs-Loeffler bacillus. I call your attention to the result of Zarnikow's experimental work, as quoted by Escherich (2). He found that no acid is formed in bouillon cultures of the pseudo-diphtheritic bacillus, which is contrary to the results of Roux and Yersin and Escherich. Here is presented to us a rich field for valuable corroborative work, in some of which Dr. Beggs and myself intend to engage in the near future, availing ourselves of the biological material in our possession.

If the first nine points of differentiation are unsatisfactory and nearly useless, the tenth is reliable and conclusive, for the non-virulence of the pseudo-diphtheritic bacillus has been demonstrated without a single dissenting voice. It does not matter in the least whether we consider, with Loeffler, Escherich, Zarnikow, Bernheim, and Morel, this bacillus an organism *sui generis*, or with von Hoffmann, Roux, Martin, and Fraenkel a non-virulent variety of the bacillus of true diphtheria, as long as no experimental evidence is adduced as to the possibility of the former actually regaining its supposedly lost virulence. Roux has succeeded in experimentally decreasing and increasing the virulence of the Klebs-Loeffler bacillus, but his attempts at rendering Loeffler's pseudo-diphtheritic bacillus virulent have so far met with complete failure. His assumption that the latter may under favorable conditions regain its virulence is purely speculative, and experimentally without proof. When Fraenkel draws his conclusions from analogies with the pneumococcus, he falls very far short of settling the disputed point, especially considering the extremely imperfect knowledge that we possess with regard to the true biology of the individual micro-organisms. Baumgarten has a strong leaning toward Roux's views. As the words of a man of his scientific accuracy must naturally carry great weight with us, I shall quote a passage from his *Lehrbuch der pathologischen Mykologie* (1890), pp. 701 and 702:

"Apart from all analogies we are of the opinion that von Hoffmann has adduced strong evidence as to the identity [of the two organisms] in establishing the fact that the diphtheritic bacillus is capable of relinquishing spontaneously and completely its most characteristic property—*i. e.*, its infectiousness. This being the case, we are justified in assuming the possibility of the same bacillus changing spontaneously from a state of non-virulence to one of virulence. We were obliged to pronounce the small morphological and cultural differences between the pseudo-diphtheritic and diphtheritic bacilli as insufficient proofs of their belonging to a different species, but just these differences agree very well with the assumption of a simple change from a virulent (parasitic) to a non-virulent (saprophytic) state of existence." Thus Baumgarten. This is interesting from a speculative point of view; still, it is theoretical deduction without experimental evidence. As directly bearing upon the vital portion of this paper, I can not very well omit to quote from an article by Dr. Flexner, of Johns Hopkins University (3):

"Among the most important results of the bacteriological study of the inflammations of the throat and air-passages has been the discovery that cases which present the features of a mild catarrhal angina or a lacunar tonsillitis may be associated with the presence of the *Bacillus diphtheriæ, and that from these can arise other cases in which membrane is found on the fauces.* This class of cases has been studied by Escherich and Feer, and especially by Koplik. Within the past few weeks I have seen two *such* instances in the practice of Dr. W. D. Booker, and from them obtained the Loeffler bacilli in cultures." The two cases spoken of by Dr. Flexner were: one of a girl with lacunar tonsillitis; the plugs from the tonsillar crypts contained the Loeffler bacillus. The patient recovered rapidly. The other was that of a child with very much swollen tonsils, but no visible membrane; cultures from the throat showed the presence of the *Bacillus diphtheriæ*. Dr. Flexner has utterly failed to prove by his cases that from them ever arose cases in which membrane was found on the fauces, and as he confined himself in making his bacteriological diagnosis to cultures, he has not given any proof as to the true nature of the bacillus obtained.

From the evidence cited we may deduce two propositions:

1. The existence of an absolutely non-pathogenic, hence saprophytic, *alter ego* of the Klebs-Loeffler bacillus must be accepted beyond doubt.

2. Under no conditions, artificial or natural, has this bacillus been proved to acquire virulence.

Acting upon these propositions, the sanitarian must differentiate in every single instance confronting him between the Klebs-Loeffler and the pseudo-diphtheritic bacilli. He is not engaged in fighting saprophytes; he is even powerless in dealing with the most virulent bacilli if the latter are demonstrated on the mucous surfaces of healthy individuals, which has been done repeatedly. The absolute, I may say the only, method to arrive at a diagnosis is found in establishing the virulence or non-virulence of the micro-organisms obtained by culture, and recognized morphologically; consequently this is the only method for the practical sanitarian.

My suggestion as to the mode of procedure is as follows:

Sterilize glass tubes of small caliber containing cotton swabs. Place these in tightly fitting wooden cylinders, and the whole in strong envelopes bearing the address of the health department, and each containing a case slip.

Place the tubes at distributing depots of easy access, and direct the physician, after having applied the swab in the usual way and filled out the case slip, to return the tubes by mail.

Make a diagnosis in the manner now practiced. If the microscope reveals the presence of an organism morphologically identical with the Klebs-Loeffler bacillus, advise the attending physician of this fact, and also of the coexistence of other important micro-organisms. He will have the premises placarded as diphtheria, and will see to the patient's isolation.

Proceed at once to inoculate into a susceptible animal, preferably a guinea-pig, a quantity of a pure culture. Upon the appearance of a local exudate, considerable infiltration or œdema, or of necrosis, record the case as one of true diphtheria; advise the physician of the result, who will continue the isolation of the patient until the swab cultures give a negative result. Then treat the premises according to prevailing sanitary methods.

In case the animal should not show any sign of a local lesion or general disturbance, remove the placard and all sanitary restrictions, and do not place the case on record at all, or record it as anything but true diphtheria.

I will say a few words with regard to some of the technical features of this plan:

The use of the mail as a medium of transmission of the swab tubes is perfectly feasible. It has been tried successfully in Germany, as reported by Dr. Hesse (4). It would save the physician a great deal of time and inconvenience.

In advocating the omission of the blood-serum tubes I follow Dr. Hesse's suggestion. The serum would not be vitiated by drying or in any other way. The slant cultures would be made uniformly by a trained specialist. It may be mentioned that Dr. Hesse succeeded in obtaining abundant cultures of the Klebs-Loeffler bacillus from dried swabs eight days old.

The information as to coexisting micro-organisms, especially streptococci and staphylococci, is of great importance to the attending physician in the light of our growing knowledge on mixed infections.

To await the death of the inoculated animal before taking the necessary sanitary steps is unessential from a practical standpoint. The appearance of a local lesion of any severity is an all-sufficient criterion in establishing the virulence of the bacillus obtained. In this connection I mention Bernheim's (5) exceedingly instructive work on *Mixed Infections in Diphtheria.* He reports the following results from inoculation into seven guinea-pigs of rather large doses of pure cultures of the pseudo-diphtheritic bacillus, together with filtrates from cultures of the *Strepto-*

coccus brevis and *conglomeratus:* In five, no change whatever occurred; in one appeared a trace of an infiltration; and in one, a very slight infiltration.

As the office of the city bacteriologist was created essentially for sanitary and not scientific considerations, the swab cultures made for the purpose of determining the final disappearance of the Klebs-Loeffler bacillus should not be made oftener than once, or at the most twice, a week. It has been ascertained that the bacillus in the great majority of cases disappears in from two to three weeks after the subsidence of the local diphtheritic process.

Now, let me consider a few objections that might be raised against the proposed plan of operation. The increased cost should hardly enter into consideration.

The danger of a dearth of animals necessary for the experimental work is very remote, for there never yet was a demand created but that the supply kept pace with it. Besides, it may prove practicable and more saving for the health department to organize an animal farm on a large scale. The objection to the early removal of the placard will not hold, as the physician, by exercising tact and discretion, will always succeed in covering his retreat with proper decorum. People, as we all know, are only too anxious to forego the distinction of living in what practically amounts to a pesthouse.

In conclusion, I will enumerate a few points that seem to me to render the adoption of inoculation into animals in every case of suspected diphtheria imperative:

1. We should be enabled to remove the ban from premises that are as groundlessly stigmatized as those would be on which any other disease of infectious, possibly contagious, but benign nature occurs. There is certainly no occasion for placarding a house containing a case of follicular amygdalitis or streptococcous angina, whether in the absence or in the presence of the pseudo-diphtheritic bacillus, the latter having been proved to be but a harmless, saprophytic admixture. An attempt to proceed to such extremes would raise an uproar in the community that few of us would have the hardihood to face. Successful sanitation is largely based upon the sympathetic support of the community at large; hence the burden should be made as light as possible within the limits of public safety.

2. The patients not having yielded the pathogenic bacillus would be enabled to benefit at a much earlier period from those most powerfully reconstructive therapeutic agents, compared with which all the drugs of the pharmacopœia sink into insignificance—fresh air and outdoor exercise. They would not be needlessly proscribed as threatening foci of infection for many weary weeks.

3. A whole measure is ever preferable to a half measure; the former would prove of valuable assistance to the practicing physician, while the latter would more frequently create doubt and confusion.

4. Our statistics would not run the danger of unintentionally misrepresenting the actual state of affairs. This I consider the *pièce de résistance* in my argumentation, for statistics—and with these I mean the genuine, unvarnished article—are our mainstay in getting at truly scientific deductions.

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HYPNOTISM AND CRIME.

A REPLY TO DR. WILLIAM LEE HOWARD.

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It often transpires in the course of a controversial argument between two individuals that what seems to be an irreconcilable difference of opinion is really nothing more than the result of a misunderstanding by one, or by each, of the other's terminology. A striking example of this is developed in the reply of Dr. Howard in my paper published in the *Journal* of January 26th, entitled Hypnotism in its Relations to Criminal Jurisprudence. A hasty reading of Dr. Howard's very interesting article would naturally lead one to suppose that he entertained views decidedly adverse to mine. Indeed, it is quite evident that he thinks so himself. I believe, however, that I shall be able to convince him that we are in entire accord, and that our seeming disagreement arises wholly from his misunderstanding of my terminology.

The first and most important misapprehension of his relates to the term laboratory experiments, which I used rather freely and without explanation or qualification other than that afforded by the context. It is a term commonly employed in works on hypnotism, and I do not find any warrant in any of them for the restricted definition which Dr. Howard evidently attaches to it. He says:

"I fully agree with Mr. Hudson as to the inefficiency, from a medico-legal view, of the value of 'laboratory experiments,' so I shall not refer to them."

I infer from this remark, taken in connection with what follows it, that he limits his definition of the term laboratory experiments to those experiments which are actually made in the laboratory, for he follows his disclaimer by the citation of a number of cases, each of which comes clearly within the term as I employed it, clearly within the principles which I sought to enforce, and obviously, it seems to me, within the definition which I inferentially gave. If Dr. Howard will carefully reread my article he will find that I laid particular stress upon "suggestions of the environment," which consist of "those suggestions which arise spontaneously in the mind of the subject from his knowledge of the nature of the experiments about to be made, of the character of the persons present, the objects of the experiments, and the desires of the experimenters." Dr. Howard freely acknowledges the potency of the most important of these suggestions in "laboratory" experiments in the following words:

"It is undoubtedly true that in those experiments the subjects know that they are surrounded by friends and presumably honest men, and that no harm can come to them; so they carry out all the farcical suggestions."

It will thus be seen that Dr. Howard does not antagonize my position concerning the potency of the suggestion embraced in the knowledge which the subject possesses of the character of those present, including, of course, that of the hypnotist. It goes without saying that this knowledge, with the consequent suggestion, enters as a factor into all *experimental* hypnotism, whether the experiments are made in a "laboratory," or in a private parlor, or in a public restaurant, or on the street. It will be seen, therefore, that the term laboratory experiments is entitled to a much broader definition than Dr. Howard seems to attach to it. Indeed, it is practically impossible to eliminate that form of suggestion in any experimental case whatever. Certainly Dr. Howard has not mentioned any experiment where that factor was absent. It follows that his cases have no possible evidential value. Indeed, they serve to emphasize what I had to say regarding the potency of suggestions of the environment in experimental hypnotism, and Dr. Howard will be the first to acknowledge that in neither case mentioned was there a possibility of criminal intent, either on the part of the hypnotist or of the witnesses. On the contrary, he does not mention a case where the suggestions of the environment were not such as to preclude all possible suspicion that there would be the slightest danger in carrying out "all the farcical suggestions."

Again, Dr. Howard takes issue with my remark that "no one can be hypnotized against his will"; and again the supposed difference seems to arise from a difference in our understanding or employment of terms. I took pains to define the term will, as I employed it, for the express purpose of avoiding any misunderstanding; but Dr. Howard seems to have overlooked my definition. The following is the language employed: "Will, in the psychic sense, is nothing more nor less than *desire*." This definition is strongly insisted upon by Schopenhauer, and it finds warrant in every standard lexicon with which I am acquainted. I restricted it to the "psychic sense" for the reason that it is emphatically the only definition that will cover all the facts in psychic science. In this sense the truth of my proposition is self-evident, that "if the subject's desire to obey the dictates of conscience is stronger than his desire to obey the suggestions of the hypnotist, the auto-suggestion must prevail." And this proposition covers the whole question of "hypnotism and crime." It is equally self-evident that, under this definition of will, if the desire of the subject to resist the suggestion of the hypnotist is stronger than his desire to be hypnotized, he will resist. Dr. Howard will not deny the truth of this proposition when it is restricted to experimental hypnotism. It is true that he undertakes to cite a case where "the only suggestion is a self-suggestion, such as a determination not to be hypnotized"; but he illustrates with an experimental case where he hypnotized an acquaintance in the presence of another acquaintance, the two being friends of each other. Dr. Howard certainly does not seriously hold that such a case is illustrative of his proposition. On the contrary, it must be as evident to him as it is to others that every factor was present in that experiment that conspires to render the ordinary "laboratory experiment" invalid. To say the least, there was nothing in the experiment that could have any possible bearing upon the question of "hypnotism and crime." We must, therefore, relegate that case to the category of those "laboratory experiments" which Dr. Howard agrees with me in declaring destitute of evidential value.

Again, Dr. Howard seems to take issue with my statements illustrative of what I have termed a *volitional auto-suggestion*. The paragraph alluded to reads as follows:

"*A volitional auto-suggestion* is one which the subject makes to himself before being hypnotized. For instance, if he anticipates the possibility that the hypnotist will place him in a ridiculous attitude, or one repugnant to his sense of propriety, he will resolve beforehand that he will not obey the suggestion. If, then, the anticipated suggestion is made by the hypnotist, it will be strongly resisted, and the potency of the resistance will be in exact proportion to the subject's innate sense of dignity or propriety. If that is very strong, and the hypnotist insists upon his suggestion, the subject will be restored to his normal condition."

To this paragraph Dr. Howard makes the following reply:

"I have caused B. B., mentioned before, to defecate in his trousers. Please do not look upon this from a vulgar point of view, for, after several years' observation of 'laboratory experiments' in Europe, I determined to get away from this unsatisfactory method of arriving at conclusions. If, as Mr. Hudson states, the subjects will do nothing distasteful to them, as an investigator I was in duty bound to settle the question."

With all due deference to Dr. Howard's superior facilities for observation in Europe and experiment in this country, I must say that he has adopted a very singular method of getting away from the unsatisfactory "laboratory experiments" of Europe, as well as of disproving the legitimacy of my conclusions. At least he has left out of his report of B. B.'s case all that could give value to such an experiment. The only thing that he has rendered reasonably certain is that he has made a "laboratory experiment" of his own in order to "get away from the unsatisfactory" laboratory experiments of his European preceptors. It is just possible, however, that he selected an apartment more appropriate than the laboratory for such an experiment; but I submit that he did not "get away" from the principle involved. Be that as it may, he has left some very important particulars out of his report, so that it is impossible to know whether he has succeeded in disproving the soundness of my conclusions. In the first place, he has not stated whether B. B. had any reason to anticipate such an experiment. If he had no reason to anticipate such an experiment he would have no opportunity to "resolve beforehand that he would not obey the suggestion." Hence it is impossible to know whether the conditions precedent which I named were complied with.

But the fundamental error which Dr. Howard has committed consists in not discriminating between the effect of suggestion upon the normal functions of the body and its effect upon the moral conduct of the subject. It does not follow, because, in a private experiment conducted by mutual friends, the normal functions of the body may be stimulated by suggestion to unwonted activity, that the same subject could be made to perpetrate a crime or to commit an overt act of impropriety in a mixed company. And this is really the only point upon which Dr. Howard and I seem to differ seriously in opinion.

But let us not be led astray by the discussion of irrelevant collateral issues. The whole question of "hypnotism and crime" is in a nutshell, and it only requires just a little clear thinking to solve the problem. My proposition was, and still is, that whether an hypnotic subject will obey a criminal suggestion is "purely a question of moral character." The truth of this proposition will become evident when we consider the following propositions:

1. Persons in an hypnotic condition are constantly amenable to control by suggestion. This proposition no hypnotist will attempt to dispute. It is *the* fundamental law of hypnotism.

2. When two contrary suggestions are made to a subject the stronger suggestion necessarily prevails. This proposition is self-evident.

3. Other things being equal, an auto-suggestion is as potent as a suggestion by another. This fact is recognized by all hypnotists.

4. Moral character is a primordial anterior suggestion that neutralizes a criminal suggestion.*

It is a corollary of these propositions that, as I remarked in the article under consideration, "if the subject's desire to obey the dictates of conscience is stronger than his desire to obey the suggestions of the hypnotist, the auto-suggestion must prevail."

No amount or quality of sophistry can weaken the force of these self-evident truths; for it *is* a self-evident proposition that, where two opposing forces come in conflict, the stronger force must prevail; and it is just as true of a moral force as it is of physical force.

It must not be forgotten that I distinctly held, in the article under consideration, that "a criminal hypnotist in control of a criminal subject could undoubtedly procure the commission of a crime"; but that it was "purely a question of moral character." In fact, this was the *motif* of my argument; and my conclusion was, and is, that "when a man sets up hypnotism as a defense in a criminal trial he proclaims himself a criminal character."

Those who believe that the suggestions of a hypnotist could have caused St. Anthony to outrage his grandmother, talk learnedly of "inhibiting" this tendency to obey the stronger suggestions of moral education and character. This is simply begging the question; for how can the tendency to obey one suggestion be "inhibited" otherwise than by a stronger counter-suggestion? A law of Nature can not be "inhibited."

Dr. Howard himself freely admits that it is true "in a general sense" that only those who "have evil and criminal instincts can be made to commit crimes under hypnotic suggestion"; but qualifies the remark by saying that "we must not forget that most of us have some latent or undeveloped animal or immoral germ hidden and inactive in our psychical organization." I submit that a criminal instinct is a criminal instinct, whether it is latent or patent, whether it is constantly active and observable, or is hidden and becomes recrudescent only in the presence of temptation or suggestion.

It will thus be seen that Dr. Howard's idea that he differs with me on the main question is erroneous. I have already shown that we are in accord in declaring laboratory experiments to be valueless as evidence on the question of hypnotism and crime; although, in attempting to disprove the correctness of my conclusions, he has cited nothing but laboratory experiments. I realize the fact that he had no others to cite, for he tells us that he has carried his "investigations to the utmost limits, stopping only at suicide, murder, and seduction, feeling that the subject is so full of great social actuality that we are bound to face it." It is obvious therefore, that before he can settle the question definitely he must enlarge his field of observation.

In conclusion I desire to say that, having shown clearly that Dr. Howard is in perfect accord with me on all the important questions involved, I shall indulge the hope that he will join me in deprecating the proposed legislation which is based on the assumption that hypnotism, outside of the medical profession, must necessarily be employed for the perpetration of high crimes and misdemeanors.

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* Bernheim. *Revue de l'hypnotisme*, 1er mars, 1890.

A CONTRIBUTION TO THE QUININE TREATMENT OF TUSSIS CONVULSIVA.

By G. THEODOR FISCHER, M. D.,
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The number of medicaments used and recommended for pertussis is legion, and this is the best proof of the poor satisfaction that their use has given. Neither astringents nor narcotics, neither balsamics nor aromatics, neither antipyretics nor antiseptics, have been efficacious in shortening the course of whooping-cough essentially; nor, except in very few cases, have they prevented the most serious complications. I, as well as others, have occasionally observed remarkable symptomatic effects at least from the use of antipyrine. So has been and still is the treatment of whooping-cough—especially on account of the pulmonary complications—one of the most intricate problems. No wonder it is said so often: "There is no help, therefore why make unnecessary expense? The disease has to run eighteen weeks; nobody can shorten it." And is it not true that the parents are often confirmed in this opinion by their physicians, who in their skepticism are led to avoid all use of medicinal remedies and to confine themselves to hygienic treatment exclusively, except in the case of complications arising? No less an authority than Henoch said, in his *Discourses on Diseases of Children:* "From treatment (*i. e.*, of whooping-cough) you will not derive satisfactory results. A remedy to diminish the period of pertussis, especially to break off the stadium of the acme, we have not, while in the stadium decrementi, when Nature begins her work of restoring, apparently almost any remedy is helpful." Formerly I had to contend with the same difficulty as Henoch. Now, when a case of whooping-cough comes under my treatment, I take it with the positive conviction that my management will be efficacious; for there is a remedy the efficacy of which is beyond doubt, and which, taken in any stage of pertussis, produces excellent effect. It is quinine, "that pearl of our pharmacopœia," as Baron says, "which in its favorable influence on whooping-cough gives another proof of the variety of its uses." Quinine was used for pertussis a long time ago, but after a season its employment was discontinued, until Binz, in 1868, called the attention of the profession to it. The results were variable, depending perhaps on the size of the dose, perhaps on the perseverance of the physician. So the full value of quinine was never realized. To what extent quinine has been used for whooping-cough in this country I am unable to state; but I have gathered the impression, after living about two years in the United States of America, that it is not administered very much in the disease in question. The merit of having placed quinine in its true light before the medical profession, is due—at least in Germany—to Ungar (*Deutsche medizinische Wochenschrift*, 1891, No. 18) and to Baron (*Berliner klinische Wochenschrift*, 1893, No. 48).

Induced by Dr. Baron's monography, which I read last spring, I have treated since June, 1894, twenty-seven cases of whooping-cough and have realized remarkable results. In general I have had the same experience as Dr. Baron's, and agree with him in his deductions entirely. The success has been variable for the first few days, because in the majority of cases the patients inclined to vomiting, and so not the full quantity of quinine was absorbed. But usually on the fifth day, at latest, a decided improvement has taken place in both the vehemence and the number of attacks. The improvement once begun, rapid progress has been made. I have had opportunities of giving the medicament to three children, who were in the first stage of pertussis.

Cases I and II were those of two children of two and two and a half years of age, whose older sisters had infected them, Here one can speak positively of a breaking off of the disease. because the spells, occurring five to six times a day, after four days were diminished to two. After four days more the whooping-cough had changed to a simple bronchitis, the course of which I did not longer observe. Case III was in a child of four years, which after ten doses had so nearly recovered that the parents discontinued the remedy, especially because the child could be induced to take it only with great difficulty. A fourth case of a beginning whooping-cough took quite another course, but here there were several unfavorable circumstances. The very feeble child came under my treatment because of a very vehement gastro-enteritis, from which it had been suffering over three weeks. After three days' treatment the child improved, but there developed by and by a whooping-cough, which two older sisters were suffering from. To make the case more aggravated, broncho-pneumonia set in on the third day, which after twelve hours snatched the child away.

This can not be imputed by any means to the inefficacy of quinine, which in so short a time could not have taken full effect; for even in complications on the part of the lungs the efficacy of quinine is supreme, and is proved by several cases of mine, among which is that of the older sister of the patient in Case IV, who had infected her little brother.

She was suffering from right broncho-pneumonia, which had developed in the second and third lobes and part of the first, when I was called to attend her and her brother, and the fever was very high. She could not be induced to take the least particle of food, and the severe coughing attacks robbed her of sleep. After four days she was nearly without fever, had some appetite, and slept again. The spells, more than thirty a day at first, had, when her brother died, decreased to about ten, and a good expectoration had taken place. Later the convalescence made more and more progress, so that I could stop further quinine treatment.

The twenty-two remaining cases were of four to five weeks' duration before they came under my treatment, except three which will be mentioned below. Four of them were complicated with broncho-pneumonia, one with gastro-enteritis. The time which it required to reduce sixteen of them to a slight bronchitis was on an average thirteen days, while mostly from the fourth day a decidedly favorable effect of quinine was noticed. The catarrh of the bronchial tubes ceased after ten to twelve days more, and a relapse did not occur, if I may rely on the statement of the nurses.

I recollect especially one case, that of a child of one year, where the whooping-cough was already of ten weeks' standing, the spells being very numerous and exhausting. A broncho-pneumonia did not exist, but the child had not the least appetite, and was very restless during the night. In a week the attacks were considerably diminished, and at the end of a second week only an occasional slight cough reminded the parents of the long sorrowful time past. The two remaining cases were in patients who called at my office, and as I did not see them again I am unable to state the effect of quinine in these instances.

The above-mentioned exceptions, being in children of six, four, and two years of age, are the only cases where I have had to discontinue quinine treatment. They were in the same family, the disease of the two older children running over three months, while the youngest child had been suffering but three weeks. Cases I and II were complicated with broncho-pneumonia; all three of the patients had more or less fever, running sometimes as high as 102·2° F. I administered quinine in a powder and in a solution, gave it in amylum capsules, and tried bread pills, but failed.*

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* A form in which quinine has been administered also is that of hypodermic injection. In 1872, 1880, and 1887 some Italian and French investigators (Galignani, Schivardi, Beurmann, Villejean) recommended very highly the use of quinine bisulphate for this purpose. In Germany, Holland in 1891, and lately Laubinger in 1894, also published their experience with the hypodermic administration of the same alkaloid, and, although they repeatedly had caused abscesses, even gangrenous necrosis of the skin, they came to the conclusion that it should be used in that form when it was impossible to give quinine in any other—a suggestion which surely is worth the trial.

Every dose given was immediately followed by vomiting, although I tried to give a mixture of hydrochloric acid right after the remedy. This state having continued for four days, I was compelled to stop quinine and to administer a solution of antipyrine, with the result that in two weeks the children were nearly well—by the bye, the only cases where I noticed such a prompt effect of antipyrine.

As to the doses I gave after Baron, one centigramme (a sixth of a grain) for the month, one decigramme (a grain and two thirds) for the year of every patient, the highest single dose not exceeding four decigrammes (six grains and two thirds), either the hydrochloride or the sulphate of quinine (the latter being much cheaper), in the form of a powder, three times a day (6 A. M., 2 P. M., 10 P. M.). In spite of the comparatively large doses the medicament agreed with the children very well, and was taken without much resistance, except in the above-mentioned cases. When an apparent improvement has taken place the dose is given less frequently, then diminished, and lastly only one full dose administered in the evening. Older children have to take the powder in amylum capsules, while little children take them without any integument. Sometimes, if the appetite is not improved as one would wish, a solution of hydrochloric acid is given additionally.

Summing up the results I have obtained in the quinine treatment of pertussis, I come to the conclusion that quinine, given in the proper doses, is the best remedy for whooping-cough at present known.

1. It diminishes the number of attacks essentially in five days at latest.
2. It reduces even the most vehement whooping-cough to a mild bronchitis in twelve to fifteen days.
3. It influences most favorably a possibly existing broncho-pneumonia.
4. It often stimulates the appetite.

If these lines induce practitioners who have with more or less success prescribed other medicaments to give quinine a trial, they will have succeeded in their purpose; and I am convinced the results will give to both physicians and patients complete satisfaction.

54 NORTH CLINTON STREET.

PNEUMONIA:

ITS TREATMENT AND ITS RELATION TO LA GRIPPE.

By J. LINDSAY PORTEOUS, M. D.,
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In the following remarks I do not imagine that I can advance many or any new theories, but wish rather to urge the strict observance of a practical and successful line of treatment (founded on a perfectly logical and scientific basis) of this much-dreaded disease, and to point out some of its aspects in relation to epidemic influenza. In a comparatively short time I have had under my charge fifty cases of pneumonia. In twenty-six of these, both lungs were involved. All recovered.

When an interne in the Royal Infirmary of Edinburgh, I well remember that a hundred and three consecutive cases ended in recovery under the treatment of Dr. Hughes Bennett. His was known as the restorative system of treatment. In those days the mind of the young physician was not distracted by the stream of baneful antipyretics which now flood the therapeutic market, and to this fact, to a certain degree, the treatment adopted by Bennett compares most favorably with the treatment of many of the younger physicians of the present day. Tartar emetic was the febrifuge which was most generally used, but very rarely administered by Bennett. He relied on stimulants, not necessarily of an alcoholic nature, but good, reliable heart strengtheners; and although science has made immense strides to aid us in diagnosticating disease, and bacteriology has suddenly jumped to the forefront to assist us to come to a positive conclusion as to the immediate cause of disease, still we are in the dark as to a sure and safe remedy for many of the most common ills to which humanity is heir. We would fain hope that diphtheria antitoxine is a true antidote for the Loeffler bacillus; that tetanus antitoxine will destroy the terrors of that disease; and that the newest antitoxine—that of pneumonia—may prove inimical to the bacillus of Friedländer.

Long ago Skoda showed that pneumonia tended to resolution and not to dissolution, and such undoubtedly is the case, whether the disease is epidemic or isolated. In our treatment we must try to assist resolution and prevent dissolution. Pain, high fever, dyspnœa, and cardiac insufficiency are the evils with which we have to contend, and to prevent or modify these must be our endeavor. Whether death comes from sudden syncope, pulmonary œdema, or gradual sinking, cardiac failure is the ultimate ending. Recognizing this to be true, we must from the outset avoid everything which tends to weaken the patient—such as antipyretics and purgatives. The former are dangerous on account of their depressing effects. The latter are exhausting, and certainly have no power to remove the fur from the tongue. The saburral condition will cease when the temperature falls, and not till then. No amount of purgation will alter it. Let us now consider the best means of combating the tendency to cardiac failure and aiding Nature to withstand the onslaught of the bacilli till we can find a bactericide powerful enough to destroy the bacilli without injuring the patient.

The drugs upon which we pin our faith are digitalis, chloral, and ammonia. The first of these was in much favor several years ago, but in time shared the fate of all remedies which are used indiscriminately by those who have not studied the actions of them from a scientific point of view. Because large doses of digitalis cause the pulse to become feeble and irregular, in proportion to the fall of temperature, it was erroneously considered that it weakened the heart and ought not to be used in pneumonia. To those who have studied toxicology, these symptoms will be readily recognized as the toxic effects of the drug, which could happen to any one in health who has taken large doses. When using large doses, the physician must ever be on the lookout for toxic symptoms, whether they be hiccough, vomiting, stupor, or partial collapse, and lessen the dose or stop the medicine entirely till these disagreeable results disappear, or, better still, according to Traube, stop the drug before the crisis is expected. Experience alone can teach the physician the proper dose for each individual case. We believe that want of sufficient care and insufficient experience are in a great measure to blame for the disuse or loss of confidence in the drug in pneumonia cases.

As regards ammonia in the disease, we consider that in this drug we have a valuable, quick, and powerful diffusible stimulant. It produces an increase in the force of the pulse, and is a heart stimulant. I have seen wonderfully quick results from it when the patient showed a tendency to faint, or in dyspnœa.

Other conditions besides high temperature and excessive consolidation have to be encountered in pneumonia. Among these are pain, cough, and insomnia. Opium or morphine given hypodermically has long been used to accomplish this end, which, to a certain extent, it does, but to counterbalance this good work it also may produce grave results by arresting expectoration. Chloroform has found strong advocates for this purpose in Wucherer, Baumgartner, and other German authorities; and well it may, as in their hands the mortality was only 3·3 per cent. in three hundred and three cases. It was given by inhalation every two hours. This treatment, however, would be rather dangerous in the hands of friends, or even of the majority of nurses. Liebreich discovered chloral, which has proved one of the most valuable drugs we possess. Ringer says it produces sleep and slows the pulse. By causing sleep the patient's strength is preserved. Pain, another source of exhaustion, is relieved by it. Its paralyzing action upon the vaso-motor centers causes the heart to go slower. It has analgetic effects upon the terminal filaments. If the dose is not sufficiently large to produce profound narcotism, there can be no hindrance to the vegetative functions, consequently cellular activity is allowed to proceed. The arterioles are dilated, the free-flowing blood flushes away the stasic elements, the waste products being taken up by the blood-corpuscles, and leucocytosis proceeds in the regular manner. With regard to this result Aulde says: "The reserve multinuclear cells are to be found in the pulmonary structures, and when the circulatory apparatus is relieved of its heightened tension these cells are permitted to act energetically—that is, they produce nuclein, the natural antiseptic of the organism." I have already stated that pneumonia is a restorative reaction to an injury received. Such being the case, the action of chloral may modify these reactions and check wholly or in part the series of organic changes through which diseased action, when unmodified, must run; but if, on the other hand, as is probably the case, the disease is due to a microbe, the fact of the arterial tension being relieved and the resulting flushing with phagocytes must tend to cut short the disease by destroying the cause. Among the fifty consecutive cases I have referred to, the ages ranged from four months to seventy-three years. The youngest and the oldest were among those who had double pneumonia.

I need not go into detail regarding the different patients further than to mention that the temperature in different cases and at different times varied from 100° up to 105·1°; this latter temperature was in a child aged three years. One very interesting case was that of a child aged two years and a half. It presented all the characteristics of intermittent or remittent pneumonia, with the difference that the physical signs were limited to the circumscribed patches about the size of a half-dollar, which went through the usual stages of fine crepitation, then the stage of hepatization, increased vocal fremitus, etc., found in all well-marked cases of pneumonia. The temperature would become normal, also the respiration. Suddenly there was a rise of temperature, which at first was difficult to account for. Careful and minute auscultation and percussion revealed another spot affected. This happened four different times. This, of course, was extremely wearing, but, with the addition of a little whisky and milk, the remedies already mentioned sustained the child's strength till Nature worked a cure.

During the present and recent epidemics of influenza I have noticed that pneumonia, more or less severe, often seizes the patient, and not only that, but that it seems to be of a contagious nature. On several occasions I have had more than one in a family ill with it at the same time. During the latter part of January I had what seems to me a very good example of this. A boy, aged eight years, was seized with pneumonia in his left lung after a slight attack of *la grippe*. He went through the usual stages, and while he was yet convalescent his sister, aged fourteen years, who had been sleeping in the same room with him, had a violent chill and soon pneumonia developed, first in the right lung, then in the left. Both patients recovered. This certainly points to the contagiousness of pneumonia—at least that form which accompanies or follows influenza. Bacteriology indorses this statement. What is to prevent the bacillus of Friedländer, when dry, taking wings to itself and flying into the mouths or nostrils of those in the sick chamber, and like other bacilli, when a suitable hatching ground is found, multiplying and poisoning the unfortunate and unwilling recipient and guardian of its microbic rites?

There is, I think, little doubt but that pneumonia is contagious. Klein found the bacillus of Friedländer in the sputa of patients suffering from pneumonia after influenza. This points to the fact that there is some kind of an alliance between epidemic pneumonia and *la grippe*, or that, seeing there are so many cases of pneumonia with or following *la grippe*, we may presume either that the same conditions of body are favorable to both or that influenza acts upon the body in such a way that it is rendered more susceptible to the ravages of pneumonia. The persistent cough following in the wake of influenza is, no doubt, due to the *Bacillus influenzæ* irritating the air-passages. If these enter the lung tissue their constant irritation may make a condition more favorable to pneumonia than if they had not entered. Whether pneumonia is a specific fever, locally manifested by an inflamed condition of the lung, or whether it is a localized disease followed by general blood-poisoning symptoms, I think there is no doubt of its contagiousness, and therefore means ought to be taken to isolate the patient and disinfect the sputa and clothes which have come in contact with him.

In the foregoing remarks I have endeavored to show that pneumonia certainly tends to resolution; that we must endeavor to prevent cardiac failure, and that we must admit that we can not cure the disease, but can only assist Nature to do so. Until pneumonia antitoxine has been proved to arrest the action of the bacilli Friedländer we must rely upon cardiac and diffusible stimulants to support the general strength and some form of anodyne to relieve the pain. I think that a record of fifty consecutive cases brought to a successful termination by a treatment based upon this theory is much in its favor. I maintain that the treatment must not be given at haphazard, but carefully and intelligently. The size of the dose can only be arrived at after careful examination of the condition of the patient and his ability to stand it.

THE HUMAN BODY AGAINST ATHEISM.*

By E. S. MAXSON, M. D.,
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MR. PRESIDENT AND FELLOWS OF THE ACADEMY: The subject that I have chosen is somewhat out of the ordinary line of topics presented here, yet I trust that the digression should not meet with disapproval.

I believe that the atheist carries in his own person the refutation of the philosophy that he professes to hold.

We know intuitively that every effect must have a cause.

It also appears that a design must necessitate a designer. Let us consider some of the evidences of design presented by the human body.

In the first place, it is a noteworthy fact that man is in a large measure made up double—that is, he has two eyes, two arms, two lungs, and so on. In this we see an evidence both of design and of wisdom in the Designer. Normally, this double arrangement, of course, renders the body more efficient. At the same time it affords a wise provision, for on all sides we meet with cases where one member or one organ has been destroyed or disabled while its mate still remains of service. Thus one kidney is sometimes found doing the work of two.

The circulatory system furnishes many evidences of design. The arteries supplying the fingers were not placed on the front side or the back side of those members, where a sharp instrument would be most likely to sever them, but they were placed at the sides of the fingers where there would be the greatest protection possible.

While some exceptions are found, the uniformity in the position of blood-vessels in different individuals is quite notable; thus the surgeon is able to use his knife with a good degree of certainty. If the blood-vessels were distributed in an accidental way, with each person a law to himself, the surgeon might plunge his lancet into an artery instead of into an abscess. The anastomosis of the arteries was another wise provision, making possible collateral circulation in case the blood supply through one artery should be cut off.

It was something more than chance, also, that placed more valves in the veins of the lower extremities than in the veins of the upper extremities.

In the blood's property of coagulation we find a great provision for the preservation of life.

Then, again, the arrest of the heart's action might have been placed under control of the will; but, in that case, it is possible tht the number of suicides would be much greater.

The bones of the body are constructed in such a way as to be at the same time both light and strong. The ribs serve as a wall and defense to the heart and lungs, while he bones of the pelvis are well adapted to support the abdominal viscera.

If the human body were without a designer, why might we not find the incisor teeth set in the back part of the jaws and the molar teeth in front?

Then, again, chance might have placed hinge joints, instead of the ball-and-socket joint, at the shoulders. In this also we may be thankful that some thought was used in planning the human frame.

The hardest substance in the body, the dentin of the teeth, was placed just where it was needed.

The skin in the palm of the hand was made thicker than the skin of the eyelids.

The tactile corpuscles were placed on the palmar side of the fingers because they would be needed there.

The reflex action of the spinal cord is of great importance in protecting the body from injury. Also it should be a cause of thankfulness that the brain is normally one of the last organs to undergo atrophy from senile change.

It is desirable that deglutition may be performed in many cases where conscious sensibility and voluntary power have disappeared. Hence the act of swallowing was placed under control of the medulla rather than under control of the cerebral hemispheres. Also the protection of the glottis in deglutition is something that all can appreciate.

The eye and the ear both speak of a Creator.

He who designed the drum of the ear understood that there should be a vent to the drum, and hence we find the Eustachian tube. The external ear might have been made to consist merely of the auditory canal, yet we can not help appreciating the purpose and advantage of the cartilaginous expansion forming the auricle.

Then we have the eyeball, with its firm sclerotic coat, its hornlike window in front, its iris to regulate the amount of light, its chamber darkened with the chorioid coat to prevent reflections, the retina for the reception of luminous rays, and the lens by which the perception of the form and outline of objects is rendered possible.

And so, for a long time, one might continue to bring forward evidences of design as shown by the human body. The evidence is sufficient to prove the existence of the Creator, the First Great Cause.

In the world there are atheists, and probably still more agnostics. The atheist does not believe in a God; the agnostic does not dare assert his existence; but the human body declares that there is a God.

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* Read before the Syracuse Academy of Medicine, November 20, 1894.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by
D. Appleton & Co.
Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, MAY 11, 1895.

THE LOOMIS MEMORIAL MEETING.

This seems an appropriate title by which to mention last week's general meeting of the New York Academy of Medicine, and it was a very proper sort of meeting to be held. The academy had recently lost a member who not long before his death had served two terms as its president, by whose energy and liberality it had greatly profited, and by whose participation in its debates its proceedings had for many years been notably enriched. The loss of an individual member sometimes counts for a good deal in determining whether a corporate body is to do active and significant work or is to go on simply existing. Of course, in the case of so large and well-constituted an organization as the academy, almost any loss is certain to be repaired within a reasonably short time, but this consideration is no warrant for undervaluing past services or for failing to acknowledge openly and freely how much the common cause has been helped along by the departed.

It was fitting that Dr. Loomis's memory should be honored as it has been honored, but it is not on that account alone that the arrangement of such a meeting was desirable; it is of direct and palpable benefit to the younger members of the academy to listen to such tributes as were paid to the distinguished dead on the occasion in question, for it gives them a livelier sense of the possibilities open to all of them and teaches them what the conduct is by which they may hope to realize those possibilities. Dr. Loomis's success as a physician and as a teacher was in no wise due to chance or to any adventitious guidance or assistance, but to his own deeds done in conformity to plans conceived and elaborated by himself. It is in this way that, with very few exceptions, every man has to make his way in the world, unless, indeed, that way has been cleared and pointed out to him beforehand. This can not be too often or too forcibly impressed upon young men, and they are never too young to profit by it. Moreover, those who are still struggling, perhaps almost on the point of giving up, may take fresh heart when they hear such achievements as Dr. Loomis's recounted. It is true, they can not all hope to equal or even approach them, but they can obtain a clearer vision of what it is they are striving after and of the way in which their efforts should be directed. Surely no overworked and underpaid young doctor can have gone home from that meeting without feeling somewhat encouraged, and encouragement is often the one thing needed to lead on to success. Dr. Bryant, the president of the academy, did not only a gracious but an exceedingly useful thing, it seems to us, when he planned the academy's last meeting.

MINOR PARAGRAPHS.

THE PHYSIOLOGICAL FACTORS OF THE FUNCTIONAL NERVOUS DISEASES OF CHILDHOOD.

In the May number of the *Archives of Pœdiatrics* Dr. B. K. Rachford writes of the blood changes which are related to neurotic disease. The most important of these are the presence of bacterial or other toxines in the blood, a venous condition of the blood, and an impoverished condition of the blood. These changes do not as a rule exist separately, but form that complicated condition called chronic anæmia. Toxines, notably those of tuberculosis, diphtheria, and typhoid fever, may produce most profound nervous symptoms by their direct action. The author discusses chiefly, however, those intoxications which result from chronic microbic diseases. Chronic glandular tuberculosis he believes is the most commonly associated with these nervous affections of childhood. Hysteria, enuresis, night terrors, and chorea are frequently relieved by treating the tubercular condition. They are undoubtedly due to the direct action of some poison generated by the bacteria. The malarial toxines also are potent in producing the same series of symptoms. Chronic intestinal fermentation, too, is a frequent exciting cause of these neuroses. The continued absorption from day to day of small quantities of bacterial poisons from the intestinal canal is a very important and much underestimated cause of neurotic disease in children. Many of the nervous disorders of childhood may be relieved or entirely cured by the proper use of cathartics and intestinal antiseptics, together with a proper regulation of the diet. Self-intoxication, though important in producing nervous disease, is but little understood. The author believes that the effect of uric acid as an agent capable of producing migraine and various convulsive disorders has been greatly overestimated. The cause of these disorders which occur with a uric-acid diathesis which is marked by an increase of uric acid and a decrease of urea in the urine, he believes, must be sought for in other poisonous products of retrograde tissue metamorphosis. He calls special attention to the influence of paraxanthin and other leucomaines in producing these symptoms. After extensive observation and study the author believes that there are three distinct types of leucomaine poisoning—viz., gastric neurosis, migraine, and migrainous epilepsy.

THE AMERICAN MEDICAL ASSOCIATION.

As we expected, the Baltimore meeting which has been in progress this week was largely attended, and it is particularly gratifying to be able to add that the attendance from the Western States was noticeably large. That the president should advocate the scheme for a national bureau of health was to be looked for. Efforts to have the general meeting take some action in regard to a dispute that has long been going on as to the propriety of the association's *Journal* accepting certain advertisements resulted in failure, but the votes on some of the motions were close. An important action taken was that of adopting a resolution requesting Congress to remedy the disabilities of the medical corps of the navy. It is to be hoped that this will have some effect, but we believe that individual effort with congressmen would have more. Substantial additions to the Rush monument fund were announced, and perhaps it may be said that this fund is increasing as fast as the financial depression in the community, felt most acutely by the medical profession, will admit of. It was many years since the association had met in Baltimore; we hope its next meeting in that attractive city will not be preceded by such a long period.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 7, 1895:

DISEASES.	Week ending Apr. 30.		Week ending May 7.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	4	1	9	7
Scarlet fever	117	12	87	13
Cerebro-spinal meningitis	2	2	3	3
Measles	222	19	278	27
Diphtheria	220	30	233	58
Small-pox	1	0	0	0
Tuberculosis	152	113	145	101

The American Pædiatric Society will hold its seventh annual meeting at the Virginia Hot Springs on May 27th, 28th, and 29th, under the presidency of Dr. F. Forchheimer, of Cincinnati. The preliminary programme includes the following papers: Cerebro-spinal Meningitis in an Infant Six Days Old, by Dr. T. M. Rotch, of Boston; Three Cases of Purulent Otitis Media which ended fatally, by Dr. W. F. Lockwood, of Baltimore; Pyopneumothorax, by Dr. Walter L. Carr; Traumatic Aphasia, Scarlatina Anginosa, Croupous Pneumonia, by Dr. Samuel S. Adams, of Washington; Hyperpyrexia, by Dr. Henry D. Chapin, of New York; Sarcoma of the Kidney in an Infant, by Dr. J. Henry Fruitnight, of New York; Lymphosarcoma of the Spleen, by Dr. George N. Acker, of Washington; Tetanus Neonatorum, by Dr. J. Lewis Smith, of New York; Infantile Tetany, by Dr. M. P. Hatfield, of Chicago; Two Cases of Tetany, by Dr. Floyd M. Crandall, of New York; Amyloid Disease in Children, by Dr. B. K. Rachford, of Cincinnati; Typhoid Fever in Infants under Two Years, by Dr. William Perry Northrup, of New York; Some Forms of Eruption simulating Scarlatina, by Dr. A. D. Blackader, of Montreal; Scarlatiniform Exanthem, by Dr. C. G. Jennings, of Detroit; Scarlatina with Intensified Eruption and poorly marked Constitutional Symptoms, by Dr. Louis Starr, of Philadelphia; Extensive Gangrene following Scarlatina, by Dr. James C. Wilson, of Philadelphia; Difficulty in Differential Diagnosis, by Dr. J. P. Crozier Griffith, of Philadelphia; Local Treatment of the Skin in the Eruptive Fevers of Children, by Dr. A. Seibert, of New York; Cases of Adherent Pericardium in Children, with Enormous Heart Hypertrophy, and Chronic Proliferative Peritonitis, and Recurring Ascites, by Dr. William Osler, of Baltimore; Rupture of the Bladder, by Dr. John Dorning; Cardiac Anomalies, by Dr. William Osler; Aorta Arising from the Right Venticle, by Dr. George N. Acker, of Washington; Patent Ventricular Sæptum, by Dr. A. Jacobi, of New York; The Characteristic Features of the Recent Epidemic of Grippe, discussed by Dr. L. Emmett Holt, Dr. W. P Northrup, Dr. Henry D. Chapin, and Dr. A. D. Blackader; Antitoxine in Diphtheria, by Dr. F. Gordon Morrill, of Boston; Personal Experience with Diphtheria Antitoxine and Blood-serum Injections, by Dr. Augustus Caillé, of New York; The Value of Diphtheria Antitoxine, and its Toxic After-effects, by Dr. A. Seibert; Cases apparently of Diphtheria, but in which the Diphtheria Bacillus is not found, by Dr. E. M. Buckingham, of Boston; and Cases of Scurvy, by Dr. A. Jacobi.

Dr. Armstrong's Case of Large Vesical Calculus.—Dr. W. S. Armstrong, of Atlanta, informs us that the stone mentioned in our issue for April 27th as having been removed by him really weighed thirteen ounces and three quarters, instead of thirteen ounces and a half.

The New York Neurological Society.—The special order for the last meeting, on Tuesday evening, the 7th inst., was a paper entitled A Report of a Case of Lead Paralysis, with Special Reference to Cytological Changes in the Nervous System and the Distribution of the Lead, by Dr. C. A. Herter and Dr. Ira Van Gieson.

The Connecticut Medical Society will hold its one-hundred-and-third annual meeting in Hartford on Wednesday and Thursday, the 22d and 23d inst., instead of as previously announced in this journal.

The New York Hospital.—Dr. Henry P. Loomis has been appointed an attending physician to the hospital, to fill the place made vacant by Dr. William Gilman Thompson's resignation.

The University of the City of New York.—The fifty-fourth annual commencement of the Medical Department was held in Carnegie Music Hall on Tuesday evening, May 7th.

Mount Sinai Hospital.—Dr. F. S. Mandlebaum has been appointed pathologist to the hospital.

Changes of Address.—Dr. William S. Dennett, to No. 8 East Forty-ninth Street, New York; Dr. Justin Herold, to No. 173 East Eightieth Street, New York; Dr. S. S. Jones, to No. 712 Madison Avenue, New York; Dr. Samuel E. Milliken, to No. 72 West Forty-ninth Street, New York; Dr. Chalmers Sangree, to No. 1531 Madison Avenue, New York.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending May 4, 1895:*

Atler, L. W., Passed Assistant Surgeon. Detached from the New York Naval Hospital and ordered to the U. S. Steamer Richmond.

Beyer, H. G., Surgeon. Detached from the Naval Academy and ordered to the U. S. Steamer Monongahela.

Boyd, Robert, Assistant Surgeon. Detached from the Philadelphia Naval Hospital and ordered to the U. S. Steamer Monongahela.

Edgar, J. M., Passed Assistant Surgeon. Detached from the U. S. Steamer Richmond and ordered to the School-ship Saratoga.

Means, V. C. B., Passed Assistant Surgeon. Detached from the U. S. Steamer Saratoga and ordered to the New York Hospital.

Morris, Lewis, Assistant Surgeon. Ordered to the Philadelphia Naval Hospital.

Stitt, E. C., Passed Assistant Surgeon. Detached from the U. S. Steamer Chicago and ordered to the Nicaragua Canal Board for inspection of work on the isthmus.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending April 30, 1895:*

Fessenden, C. S. D., Surgeon. Detailed for duty on board for examination of officers of the Revenue Cutter Service. April 17, 1895.

Hamilton, J. B., Surgeon. Granted leave of absence for twelve days. April 20, 1895.

Stoner, G. W., Surgeon. Detailed to represent the service at the meeting of the American Medical Association. April 25, 1895.

Mead, F. W., Surgeon. Detailed as chairman of the board for the physical examination of officers of the Revenue Cutter Service. April 17, 1895.

Banks, C. E., Passed Assistant Surgeon. When relieved, to report at the bureau for duty as chief of the purveying division. April 24, 1895. Granted leave of absence for fourteen days. April 29, 1895.

Williams, L. L., Passed Assistant Surgeon. Detailed for duty on board for examination of officers of the Revenue Cutter Service. April 17, 1895.

McIntosh, W. P., Passed Assistant Surgeon. Detailed for duty on board for examination of officers of the Revenue Cutter Service. April 17, 1895.

Kinyoun, J. J., Passed Assistant Surgeon. Detailed to represent the service at the meeting of the American Medical Association. April 25, 1895.

Woodward, R. M., Passed Assistant Surgeon. To proceed to Ashtabula, Ohio, as inspector. April 19, 1895.

Wertenbaker, C. P., Passed Assistant Surgeon. Granted leave of absence for ten days. April 16, 1895.

Brown, B. W., Passed Assistant Surgeon. Detailed as recorder of the board for the physical examination of officers of the Revenue Cutter Service. April 17, 1895. Granted leave of absence for twenty days. April 23, 1895.

Stewart, W. J. S., Assistant Surgeon. To rejoin station at Washington, D. C. April 20, 1895.

Prochazka, **Emil**, Assistant Surgeon. To proceed to Evansville, Ind., for temporary duty. April 29, 1895.

Thomas, A. R., Assistant Surgeon. Granted leave of absence for thirty days. April 19, 1895.

Society Meetings for the Coming Week:

Monday, *May 13th:* New York Academy of Medicine (Section in General Surgery); New York Academy of Sciences (Section in Chemistry and Technology); New York Medico-historical Society (private); New York Ophthalmological Society (private); Lenox Medical and Surgical Society, New York (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private).

Tuesday, *May 14th:* Illinois State Medical Society (first day—Springfield); North Carolina State Medical Society (first day—Goldsboro); New York Academy of Medicine (Section in Genito-urinary Surgery); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Albany (annual), Delaware (annual), Greene (annual—Cairo), Onondaga (annual—Syracuse), Rensselaer, Seneca (annual), and Steuben (annual), N. Y.; Newark, N. J. (private), and Trenton, N. J., Medical Associations; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Camden (annual—Camden), Morris (annual), and Sussex (annual), N. J., County Medical Societies; Northwestern Medical Society of Philadelphia; Practitioners' Club, Richmond, Ky.; Norfolk, Mass., District Medical Society (election—Hyde Park); Franklin, Vt., Medical Association (annual).

Wednesday, *May 15th:* Ohio State Medical Society (first day—Columbus); Illinois State Medical Society (second day); North Carolina State Medical Society (second day); Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); New Jersey Academy of Medicine (Newark).

Thursday, *May 16th:* Ohio State Medical Society (second day); Illinois State Medical Society (third day); North Carolina State Medical Society (third day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

Friday, *May 17th:* Ohio State Medical Society (third day); New York Academy of Medicine (Section in Orthopædic Surgery); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *May 18th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Births, Marriages, and Deaths.

Married.

Banks—Clough.—In Natchez, Miss., on Tuesday, April 30th, Dr. J. E. Banks, of Monticello, Miss., and Miss Loula Clough, of Natchez.

Boyd—Williamson.—In Darlington, S. C., on Tuesday, April 23d, Dr. John E. Boyd and Miss Bessie Williamson.

Jameson—Williams.—In Baldwinsville, N. Y., on Tuesday, April 30th, Dr. Thomas Jameson, of Rochester, and Miss Clara Williams.

Leigh—Hyams.—In Port Allen, La., on Tuesday, April 30th, Dr. Alcide Leigh, of Perthshire, Miss., and Miss Julia T. Hyams.

Pierce—Morton.—In Milwaukee, on Thursday, April 25th, Dr. Norval H. Pierce, of Chicago, and Miss Druce Wahl Morton.

Died.

Allen.—In New York, on Thursday, May 2d, Dr. Harlan Preston Allen, of Columbus, Ohio.

Burton.—In Bay Shore, N. Y., on Sunday, April 28th, Dr. Matthew H. Burton.

Byron.—In New York, on Wednesday, May 8th, Dr. John M. Byron, aged thirty-three years.

Cupples.—In San Antonio, Texas, on Friday, April 19th, Dr. George Cupples, aged seventy-nine years.

French.—In Malden, Mass., on Saturday, April 27th, Dr. Nathan French, aged eighty-four years.

Fuller.—In Brooklyn, on Thursday, May 2d, Dr. Stephen Edward Fuller, aged fifty-eight years.

Greely.—In South Weymouth, Mass., on Tuesday, April 23d, Dr. Moses R. Greely, aged sixty-seven years.

Isom.—In Oxford, Miss., on Thursday, April 25th, Dr. T. D. Isom, Jr.

Letters to the Editor.

THE ALLEGED GLOBULICIDAL EFFECT OF ALIEN SERUM.

New York, *May 6, 1895.*

To the Editor of the New York Medical Journal:

Sir: With reference to the second letter of Dr. Armstrong in the last issue of the *Journal* (May 4th), permit me, first, to state briefly the exact point under discussion.

Dr. Armstrong maintained in his first letter (April 13th) that in the consideration of the use of antitoxine serum the factor of the globulicidal effect of alien serum was overlooked, and that it was this factor which caused the death of the seventeen-year old girl in Brooklyn. In my letter (April 27th) I pointed out that all the statements as to the globulicidal effect of alien serum had reference only to its intravenous transfusion and not to its subcutaneous injection; on the contrary, many subcutaneous injectioon have now been made with horse serum into rabbits and guinea-pigs with no globulicidal effects; and, finally, that with such a small quantity as ten grammes of horse serum the globulicidal effect would have no fatal consequence even by intravenous injection. Now let us see the answer of Dr. Armstrong. He says that I misunderstood his position when I considered that he confounded intravenous with hypodermic injection. "Morphine or any other drug acts more decidedly and rapidly if injected into a vessel rather than beneath the skin, but its ultimate effect is the same. So with serum." Accordingly Dr. Armstrong makes no distinction between intravenous and hypodermic injections. Where, then, did I misunderstand him? Perhaps in my statement that he unconsciously confounded both methods. But I had sufficient reason for such an assumption. Dr. Armstrong himself states that intravenous injections act "more decidedly and rapidly" than hypodermic applications. Under such circumstances an experiment which is made with intravenous injections is certainly *not implicitly* applicable to hypodermic injections. Dr. Armstrong's quotation in the first letter, however, had reference only to transfusion, and there was no expressed statement whatsoever that he believed those experiments to hold good also for hypodermic injections. Hence my assumption that he was "not conscious of the fact that he is confounding intravenous with hypodermic injections" This is, however, an indifferent matter. There can be no misunderstanding about his present position. He says that there is no difference in the ultimate effect of morphine or any other drug after the two modes of administration. "So with serum." Morphine was an unhappy selection for comparison, as there is a special reason why the ultimate effect is the same, and that is that morphine is always excreted in the stomach and intestines, no matter where it is introduced, and it is certainly not so with serum. In order to show that there is a great deal of difference in the ultimate effect of some substances according to the mode of their introduction into the body, I need only refer to such simple media as water and milk. Their intravenous transfusion might produce death, whereas they are quite harmless fluids in hypodermic injection. But there is a still more striking instance in Dr. Armstrong's own quotations. While he does not cite anything which could be construed in favor of a globulicidal effect of the subcutaneous injection of alien serum, he makes a quotation which certainly does not support his view. It reads as follows: ". . . they [Héricourt and Richet] also showed that thirty grammes of dog's blood to each kilogramme of a rabbit might be introduced with safety into the peritoneal cavity of the latter animal, whereas if seven grammes were introduced into the veins the animal died." The rabbit with seven pro mille of alien blood injected into the veins *died*, and the rabbit with thirty pro mille of alien blood infused into the peritoneal cavity "lost weight during many days." Are these ultimate effects the same? By the way, a profound disturbance in the nutrition sometimes occurs also when blood of the same class of animals is injected into the peritoneal cavity—probably on account of some degree of peritonitis produced by the foreign body.

Whether the antitoxine serum produces hyperthermia or contains another toxic principle, has nothing to do with our question. Dr. Armstrong spoke in his first letter exclusively of the globulicidal effect of the horse serum in the antitoxine, and only in reference to this did I say, and do I say again, that his position (in his first letter as well as in the second) is not sustained by facts; nobody as yet has maintained that a subcutaneous injection of ten grammes of alien blood or serum has a globulicidal effect; on the contrary, in connection with the preparation of antitoxine, hundreds of experiments have been made which have demonstrated conclusively that the subcutaneous injection of alien serum does not have a globulicidal effect even on a rabbit, the most sensitive for this purpose. In conclusion, I wish to say that I am not attacking Dr. Armstrong, but am warding off the accusation against Behring, Ehrlich, Roux, and other investigators of high merit, that they overlooked in their efforts the elementary factor of the globulicidal effect of alien serum.

S. J. Meltzer, M. D.

Proceedings of Societies.

SOCIETY OF THE ALUMNI OF CHARITY HOSPITAL.

Meeting of April 3, 1895.

The President, Dr. Adolph Rupp, in the Chair.

Staphylorrhaphy.—Dr. Carter S. Cole spoke of a patient whom he had hoped to show at the meeting, but who had not yet arrived. He stated that the point of interest was the age at which the operation had been done, and as to the possibility of ever doing any good in those cases; unless an operation was done at a very early age, before the child had learned to use other muscles in articulation, it was apt not to be of benefit. Any one interested in this matter who had done operative work was probably quite familiar with the difficulties of staphylorrhaphy. In the present case there had been two operations. The fissure had extended up to the posterior third of the hard palate, and the first operation had been done with the head in the upright position, the parts being sutured to the tip of the uvula. Union had occurred over only a third of the part sutured. A year later there had been much adenoid tissue in the pharynx, which had had to be removed before the second staphylorrhaphy. Two weeks later the speaker had performed the second staphylorrhaphy, again using silkworm gut for suturing, the head pendent, loosening up the palate on either side by an incision, and relaxing the uvula as much as possible. Union had taken place to the tip of the uvula and the roof of the mouth was now perfect. The recovery had been uninterrupted and the child was improved in every particular, losing a great deal of that catarrhal voice which was so persistent in such cases.

The President asked if the hearing had been affected, and what effect the removal of the adenoids from the post-nasal space, plus the improvement due to staphylorrhaphy, had had on the hearing.

Dr. Cole stated that the hearing had been perfect all the time; the adenoids had not affected it at the time he had seen the child. It had been nearly a year between the first operation and the time he had seen the child again, and during that time the pharynx had been pretty well filled with adenoids. His impression was that the child had not been particularly bothered with catarrhal symptoms at any time.

A Sterilizer.—Dr. E. Pierre Mallett presented a sterilizer. While claiming no originality in its conception, he had put it in a form in which for simplicity, compactness, and efficiency it equaled any, while its expense was trifling. It consisted of two tin baking pans, fourteen inches long, six inches wide, and three inches and a half high, and two small alcohol lamps which could be folded up and carried in small boxes. One pan fitted into the other when not in use, holding the instruments, and the complete apparatus, instruments and all, could be carried in a small satchel. When in use, one pan was filled with water covering the instruments, while the other was inverted upon it and pressed down tightly so as to retain the steam. The alcohol lamps were then unfolded and lighted and the pans placed upon them. After boiling as long as necessary, the inverted pan was removed and used as an instrument tray, thus assuring perfect sterilization. The cost of the entire apparatus was just seventy-one cents. It did not have to be made to order by a special workman, but could be bought at any hardware or large general store at the cost stated.

Dr. Cole suggested baking tins that were hinged at the side as being of advantage.

Practical Points as to Peritonitis.—Dr. Cole, in a paper on this subject, stated that peritonitis was the result of injury to the peritonæum itself or to neighboring structures, or of disease of one of the organs which it covered, or of the extension of disease to it from other structures. He believed it always bacterial, and he thought that no single variety of micro-organism was alone concerned in the inflammatory process. In cases of intestinal origin the colon bacillus was present, the *Streptococcus pyogenes* in puerperal peritonitis, the *Staphylococcus pyogenes aureus* or *albus* after laparotomy, and the *Amœba coli* in some cases of amœbic dysentery, and the *Diplococcus pneumoniæ* was sometimes found. The symptoms were pain, intense, cutting, piercing, griping, intermittent, diminishing as the disease extends, with or without chill; vomiting, increasing, intractable as the abdomen became more distended, until intestino-peritoneal septicæmia completed the scene and destroyed the patient. As to diagnosis, the previous history, the possible origin, extent, condition, and surroundings of the patient, the determination of present or past kidney diseases, the latter having a special bearing on treatment, were all matters of grave import in making the diagnosis and directing the course to be followed. The speaker gave the following conclusions:

1. Peritonitis was palpably and practically always a symptom demanding surgical consideration, not necessarily operative interference; and in any case a man who was unable to meet any surgical aspect that might arise, did himself and his patient an injustice in not having in consultation from the outset some one who was able to do it. 2. In localized cases of pelvic origin, we should use saline cathartics, hot douches, and hot applications (cold in exceptional cases), followed later by appropriate and necessary operative treatment by the abdomen or the vagina, preferably, where practicable, the latter. [3. In cases originating in disease of the vermiform appendix, the possibility or probability of perforation should be considered, also of the existence of intestinal paresis and of the limitations of the process, and then we should make an immediate decision as to operation. Emptying the lower bowel was in all cases advisable, but salines should be used cautiously, if at all, before an operation. Morphine in small quantities was permissible if one were well assured of the existing condition. In a considerable proportion of these cases early operative interference offered the best chances. 4. In circumscribed cases, of whatever origin, where the process simply resulted in an abscess, it should be dealt with as such and surgically. 5. Rectal and vaginal examinations were not to be overlooked as important avenues leading to a diagnosis. If aspiration was permissible and desirable, an incision was demanded. 6. In a general septic peritonitis, of whatever origin, an operation alone gave any hope.

Dr. Brooks H. Wells stated that his own views coincided with the author's absolutely, both in the idea that peritonitis was always a symptom of some localized trouble, and that it very often needed surgical interference.

The President asked if Dr. Wells would say that peritonitis was always a symptom of localized trouble.

Dr. Wells stated that fifteen years ago there had been a great many varieties of peritonitis spoken of, called general peritonitis, local peritonitis, etc., but nowadays peritonitis was not regarded as a disease *per se*, but rather as a symptom of some previous injury or infection of the peritonæum. It was always localized at the beginning, and only became general when conditions were present which favored the spread of the initial infection.

Dr. W. L. Stowell spoke of a case of his that he considered peritonitis, and had called a consultation with the expectation of operating. The consultant, however, had thought it was better not to operate. In a few days the course of the disease had been unfavorable, and the patient had been removed to a hospital. The operation was performed, and it was found that the trouble was tubercular. In that case the operation would have been unfavorable at any time.

Dr. A. Campbell White spoke of a recent case of his of peritonitis or, more definitely speaking, inflammation of the appendix, in which he had called in a consultant with different results. The speaker had not expected an operation to be performed, and on his describing the symptoms the surgeon had thought the same; but after examining the patient the surgeon had decided upon an immediate operation, and the operation had been performed as soon as the patient and instruments could be prepared. The symptom in this case indicative of operation had been a very strong muscular resistance over a somewhat restricted area just above and to the inner side of the superior iliac spine. The abscess cavity had been found much higher and at some distance from the area of tenderness. The temperature had been 99° F. The patient had recovered. The point of interest he considered in this case to be the almost entire absence of constitutional symptoms, with only occasional attacks of localized pain without pressure, in a patient whose local condition had proved an operation to be of a very serious character. He believed the history of this case and the subsequent events strongly emphasized the point brought out in the paper of the evening, that we could do justice to ourselves and to our patients only by having the benefit of an early consultation in such cases.

Dr. E. P. Mallett wished to emphasize the importance of a careful examination *per rectum* and its great value as a means of diagnosis in cases of peritonitis. In five cases of appendicitis in women, diagnosticated as pyosalpinx, he had been able, after a careful rectal examination (as well as bimanual palpation *per vaginam*), to make a perfect diagnosis, as proved by subsequent operation. The practical point which had impressed him in the cases cited was an induration, or brawny feeling, high up on the right side of the pelvis. Whether this existed in all cases, or only in those where the appendix is low and had become attached to the surrounding tissues, he could not say.

The President said that to the surgeons was due the credit of having made our notions concerning the fact or facts of peritonitis clearer. It was interesting to look over the statistics of abdominal diseases for the years, say, prior to 1885, and the statistics of the same diseases since 1885 or 1890. One was struck by the comparative scarcity of local peritonitis, *i. e.*, appendicitis, before 1890; now appendicitis was found and recorded more frequently because the surgeons had taught us to be better diagnosticians in this respect. However, there were certain cases of peritonitis, local in origin, which became general so quickly or killed so rapidly by shock as to be beyond remedy even by the surgeon. Possibly the facts concerning peritonitis might be still further appreciated in the near future, and the surgeon be dispensed with or his usefulness as an operator limited. He narrated the case of a man who had had symptoms of chronic lead poisoning and, as an acute trouble, colic. On the fourth or fifth day of the disease a slight swelling in the right iliac region had been noticed, and a surgeon had been called in to operate. Trouble with the appendix had been looked for from the start, but no evidences of that trouble could be found. There had been no McBurney sign at any time. The surgeon had confirmed the diagnosis, and, instead of operating, had aspirated and drawn off a large quantity of puriform matter through the rectum. The next day the man had been operated on and a gangrenous appendix found loose in the pelvic or abdominal cavity. The patient had died about twelve hours after operation. The speaker thought the gravity of localized peritonitis in children had been exaggerated by surgeons. Every summer he was called to see boys who had localized peritonitis brought on by overexertion from swimming and ball-playing. In a week or two they recovered. He knew of several men who had had recurrent attacks of peritonitis (appendicitis) who were not confirmed invalids. He would by no means minimize the importance of the surgeon's aid in these maladies, neither would he say that all persons with localized peritonitis should be operated on.

Dr. Cole said that he did not recommend an operation in every case, but his point was that peritonitis was always secondary; that it was always a surgical disease; and that it should have associated in its care a man able to do anything that might be required in a surgical way. In the last three years he had taken through five or six cases of appendicitis without operative procedure, but where he had operated for early perforation he had had the satisfaction of finding his diagnosis correct—that the perforation had taken place. In regard to examination through the rectum, he made a special point of that in all cases. Particularly he had in mind the tube and ovary of the right side, in their relation to disease of the appendix, where the vaginal and rectal examinations were demanded. He spoke of a case where he believed that if a surgeon had been called at first the patient's life would have been saved. As to an operation for perforation in typhoid fever, he had never recommended it, but a great many cases of retroperitoneal abscess were diagnosticated and treated throughout as typhoid fever. In a case he had seen and considered to be typhoid fever, after five or six weeks' illness he had found an abscess, and he had since doubted very much whether the case had been anything else than one of retroperitoneal abscess.

Malarial Fever in Infancy; its Ætiology, Symptoms, and Treatment.—Dr. Charles J. Proben, in a paper on this subject, stated, as to ætiology, that the two main conditions favoring malarial fever were telluric and meteorological. The only way of determining whether a location was malarial was by noting the effect of residence in it upon the human race. The severest cases were in the southern and southwestern States, the temperate zone furnishing a large number of milder cases, while the far north was practically exempt from the disease. A temperature of about 60° F. was favorable; below this there was practically no danger. Freezing destroyed the miasm. Air and water were both thought to be media for the transmission of the poison. The susceptibility was far the most marked in children from two to seven years of age. Fœtal malarial disease was rare, and infants were almost exempt, because they were not exposed to the miasm after sunset, when infection oftenest took place. Owing to the favorable telluric conditions, the absence of swamps, brought about by drainage, and the effect of population, malarial disease was seldom contracted in this city, except along the water front on the upper third, along the east side, and the middle part of the west side. The plasmodium was pathognomonic of malarial poisoning. In the human blood the hæmatozoa attacked and rapidly destroyed the red blood-corpuscles, producing anæmia. Pigment resulted from their action on hæmoglobin, producing melanæmia and interfering with the oxygen-carrying function. There were different forms of the parasite—the amœboid, rosette-shaped, crescent, and flagellate bodies and spores. Blood examinations were advised in all obscure cases of fever where chronic paludism was suspected. A good light with a one-twelfth immersion lens was necessary for the examination of the fresh blood, in order to discern the amœboid motion. Dried specimens were not so satisfactory. The stain was preferably methylene blue or gentian violet.

The two forms were intermittent and remittent, and the latter was often mistaken for typhoid fever. There was well-marked malaise, accompanied by drowsiness and apathy or a general irritable condition. The infant looked tired, its face was drawn, its color changed; the nose was pinched, with dark circles beneath the eyes; the skin was pale, often livid; the nails and finger tips were blue, or the lips were cyanotic; the surface temperature was reduced, especially in the extremities, which appeared cooler; rarely there were twitchings of the muscles or other cerebral symptoms. If the attack occurred after feeding, nausea and vomiting might occur. The pulse was rapid and the rectal temperature moderate or high, according to the severity of the case. These symptoms were followed by a febrile stage, which was the first constant and reliable condition. The phenomena during this period were great irritability, restlessness, peevishness, even capriciousness; the cheeks were flushed, the skin was hot and dry, and the lips were dry. The two great systems most affected in infants were the respiratory and the gastro-intestinal. Enlargement of the spleen should always be looked for. Of the respiratory tract, the nose might be affected, manifested by sneezing and an attack of coryza. The larynx was attacked by spasmodic or inflammatory conditions; the tonsils were the seat of congestion, with small white spots resembling follicular amygdalitis; there were also bronchitis or pulmonary congestion in infants, intermittent forms of torticollis, with or without brain complications, vaso-motor disturbances, urticaria, usually due to gastro-intestinal disturbances, herpes facialis, and in severe cases hæmaturia.

Where the patient inhabited a malarial district, removal to a healthier and better-drained locality was desirable. Night exposures and a sleeping apartment near the ground were to be avoided. The drinking water, also milk, should be sterilized. Salt water bathing was to be recommended. The diet should be regulated. The great remedy was quinine or the other alkaloids of cinchona bark. Given in large doses, quinine seldom failed to effect a cure. For an infant, from four to six grains a day should be given for a week or two. To disguise its bitter taste, it could be given in powder suspended in aromatic syrup of yerba santa. We should add to the mixture small quantities of alkaline carbonates, to prevent any solvent action on the quinine. The solvent action in the stomach could be facilitated by administering immediately afterward a few drops of hydrochloric acid or a little lemon juice. Next to quinine, arsenic was the most useful drug in chronic malarial dyscrasia. It should not be given in acute intermittent fever, unless for some reason quinine could not be given. Quinine in sufficient quantities in the blood had an influence over the protoplasm of the parasite which rendered that organism inert, so that it fell a prey to the phagocytes, giving the blood, which had become impaired, a chance to recruit new elements.

Dr. Cole said the writer of the paper had evidently found an effective method in the examination of the blood, and he hoped he would give it.

Dr. Stowell said he had had twenty-five years' experience with fever and ague, as in 1870 he had had the disease in Michigan, where it was extremely prevalent and there was every facility for developing the plasmodium. In this city the drainage was good, and the water supply and sewer system were satisfactory. He had noticed enlarged spleen in a few cases. He also examined the blood for the plasmodium, and thought fresh blood was far more satisfactory than dried blood. He thought the number of malarial cases was exaggerated, and that ninety-five per cent. of the patients had indigestion, only needing a clearing out of the bowels. Where the plasmodium was found and the large spleen, quinine was the only remedy. He did not believe malarial fever was common in this city, except where there was considerable low land or land being turned up anew, as in Harlem.

The President thought there were among children a great many cases of fever of an intermittent type, due to bad air, which are cured by quinine. Why should we cease to call them malarial? In cases in which this plasmodium was found, let it go by a name that characterizes it, and then due importance from a practical as well as theoretical point of view would follow, and no exaggeration one way or the other become fixed and confusing.

Dr. George H. Mallett spoke of three cases of children who had had acute nephritis. They had had a cold stage and the high temperature and sweating. They had been treated continuously with quinine, with no effect, until the urine had been examined, and then remedies applicable to the kidney lesion had been given with the happiest results. He thought it very important that the urine should be examined in all cases presenting these symptoms.

Dr. A. T. Muzzy said that the effect of the disease on the eye was the hardest form of eye trouble he had to deal with, and the form that it usually seemed to take was keratitis, sometimes at the junction of the cornea and the sclera, but more frequently well within the cornea.

Dr. Proben stated that he had not met with the nephritis spoken of by a previous speaker, but he had frequently observed small quantities of albumin in the urine. Quinine had been used hypodermically only in cases of children very ill, where the quick action of the drug had been desired. He emphasized the importance of an examination of the blood, and said it could be made easily. A drop of blood was put on a glass slide and covered by another slide, and with a good microscope the examination would take but five minutes. If the examination could not be made at the patient's house, a drop of blood was dried thoroughly, then stained, and the examination was made afterward.

Remarks on the Aims and Methods of Hospital Alumni Societies.—The President, in a paper with this heading, stated that, as this was the next to the last meeting of the society for the season, he wished to bring to the attention of the members a few facts concerning its methods of management. Too often one saw only the same faces and heard only the same voices, and under such circumstances the meetings could not help but finally become monotonous. The men who took the most interest in the meetings were those who had left the hospital between 1875 and 1885. The circle was too limited, and an effort should be made to interest those who had left the hospital before and since that time. He suggested that the committee on new members be asked to enlarge their sphere of usefulness by looking around for candidates, old practitioners as well as the youngest graduate. He spoke of the necessity of each member keeping afloat on the grand stream of medical science and art, and he thought alumni societies had exceptional advantages in that all their members had enjoyed the rare opportunities of observation in a large hospital before beginning their career as private practitioners; some of them had drifted into the various specialties, some were only physicians, others only surgeons, and only a few were general practitioners. Thus each could carry away more from the meetings than from the meetings of the other societies, all of which had special tendencies. He stated that by vote of the last meeting the officers and standing committees formed its executive committee. The powers conerred were great and might easily be abused, but, if properly managed, would facilitate and expedite the routine business and brighten and lengthen the social part of the gatherings. The specific character of the government of the society was committee government. He suggested that the names of all the officers and members of the various committees be printed on the reverse side of the notice cards.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of January 2, 1895.

The President, Dr. C. C. Barrows, in the Chair.

(Concluded from page 569.)

Double Castration for Hypertrophy of the Prostate; a Critical Study of the Subject from the Clinical Standpoint.—Dr. Samuel Alexander read a paper with this title.

Dr. E. L. Keyes said that, beyond offering his moral support to the author in the position taken by him, he felt that he could do but little. Certainly some of those interested in genito-urinary surgery had been too enthusiastic when they had accepted without question the remarkable statements that had been made about atrophy of the prostate occurring within a few hours or days after castration. He had suggested the operation to three patients, all of them very old, and most of them quite feeble, who had refused to give their consent to the operation on the ground that the testicles had not yet ceased their function. The operation might be applicable in a certain class of cases, but personally he was still of the opinion that the average person with enlarged prostate was better off if properly taught and supervised in the use of the catheter. He had in some instances been able to secure the return of the entire function of the bladder when there had been absolute retention of urine, with entire dependence upon the catheter for vesical evacuation for periods as long as several weeks. This had been done by careful and persistent use of a catheter, vesical irrigation, rest, and proper dietetic and hygienic measures. He would advocate strongly the various methods of prostatectomy, adapted carefully to the individual case. Where the bladder was entirely atrophied and incapable of carrying on its normal function, the catheter must still be resorted to, even though the caliber of the prostatic urethra had been restored. There were conditions in which catheterism was very painful, or was very unsafe, owing to the patient's ignorance and uncleanliness. In cases of this kind castration might be considered justifiable, as well as in cases where, owing to the patient's general health, prostatectomy would be especially dangerous. Here it was possible that castration might accomplish a good deal, but this was a matter to be determined by further observation. In conclusion, he would say that it seemed to him that the protest against a generalization of this operation made by the author of the paper was timely and well worthy of consideration.

Dr. L. Bolton Bangs said that he had been very much pleased with the paper. In analyzing the cases already reported, he had come to about the same conclusions as the writer of the paper. It had never seemed to him that the patients who had been castrated and reported cured had been properly observed and classified before operation. A distinction must be made between the physiological atrophy of the prostate resulting from the abrogation of its sexual function, and a decrease in size of the pathological condition called hypertrophy of the prostate. This pathological condition was a hyperplasia, and it could not be that this hyperplasia would disappear within a few days after performing castration. Such a contention was preposterous. Rest in bed, with proper catheterism, it was well known, would so modify the condition o the prostate as to allow much more freedom in the passage of urine. He had proposed this operation of castration to patients, but in no case so far had they given their consent. He had been able, however, to relieve these prostatics by other methods, although, of course, not to cure them. It was an ingenious theory, based upon observations in regard to eunuchs and the lower animals, but to apply it to a pathological condition and to patients of advanced age did not seem to him at all rational.

Dr. ROBERT T. MORRIS asked if ligation of the vas deferens and spermatic artery was not likely to accomplish as much as castration, although perhaps more slowly. It was known that such a ligation set up a gradual atrophy when done accidentally.

Dr. ALEXANDER said that the question had been asked by Dr. Morris when Dr. White had read his paper before the American Association of Genito-urinary Surgeons, in Washington, last May, and the reply had been that this was a matter demanding further investigation. He knew that it produced the same result in animals as removing the testicles did.

Regarding the treatment of advanced prostatic disease by drainage, he would say that the advantages of perineal incision over suprapubic incision were great. He had not yet offered castration to any patient. In a case shown at his clinic that day, the patient, an old man of sixty-five years, had suffered from frequent micturition and other urinary symptoms for a number of years; previous unsuccessful attempts had been made to get an instrument into his bladder. The rectal examination which he had made had shown a very large prostate. Attempts to introduce any catheter had failed, owing to a stricture situated just in front of the bulbo-membranous junction. For this reason he had cut this man in the perinæum on a filiform guide, had then forcibly dilated the neck of the bladder, and had found a long, rigid prostatic urethra. The bladder had been completely atrophied. A drainage tube had been introduced for about a week, and the bladder and wound washed out twice daily. A catheter had been passed twice a day. The patient had had almost complete atony, yet he could now void seven or eight ounces of urine spontaneously. When it was allowed to collect, there was the same amount of residual urine.

The speaker said he thought that in cases of difficult catheterism due to prostatic obstruction, in which prostatectomy could not be performed, there was nothing which gave more satisfactory results than this operation; he did not think its merits had been sufficiently appreciated.

Book Notices.

Atlas of the Diseases of the Skin, in a Series of Illustrations from Original Drawings, with Descriptive Letterpress. By H. RADCLIFFE CROCKER, M. D., F. R. C. P., Physician to the Department for Diseases of the Skin, University College Hospital, etc., London. Fasciculi I to IX. Edinburgh and London: Young J. Pentland. New York: Macmillan & Co., 1895. [Price, $6 each part.]

THE publishers announce that this work will be issued in sixteen fasciculi, royal folio size, each fasciculus consisting of six full-page plates with descriptive text. The ninety-six plates will represent fully two hundred life-size figures reproduced from the original water-color drawings by chromolithography.

The first fasciculus contains plate ii, illustrating erythema tuberculatum of the chest and of the hand, and erythema circinatum; plate xlii, illustrating dermatitis gangrænosa infantum with varicella, and miliaria infantum; plate xliii, showing ichthyosis of the trunk; plate lviii, showing four forms of xanthoma; plate lx, presenting lupus vulgaris with epithelioma; and plate xcvi, depicting scabies in an infant and in an adult.

In the second fasciculus, plate v shows the early and the late stage of urticaria papulosa; plate xli, three illustrations of the early and later stages of lupus vulgaris; plate lxviii, three phases of scrofuloderma, chronic scrofulous ulceration, lupus verrucosus, and verruca necrogenica; plate lxxii, a remarkably large example of cicatricial keloid; plate lxxx, good examples of eczema-like seborrhœa and of eczema palmare seu rimosum; and plate lxxxii, a case of seborrhœa papulosa seu lichenoides.

Fasciculus three contains plate xxxii, that illustrates subacute and chronic forms of lichen planus and also its mode of affecting the mucous membrane; plate xxxvi, that shows a case of bullous iodide eruption in a patient affected with chronic albuminuria; plate xxxvii, that illustrates the early and the late stage of arsenical pigmentation, and the early and the late stage of arsenical keratosis produced in persons taking arsenic for therapeutic purposes; plate xlvii, illustrating three varieties of warts; plate lxiv, showing an interesting case of lupus erythematosus sebaceus; and plate lxxxvi, that shows examples of acne varioliformis of the face, head, and trunk.

The fourth fasciculus contains plate xv, that portrays three cases of herpes zoster in different stages; plate xvii, that shows an extreme example of pemphigus; plate xxxiv, that depicts an example of lichen scrofulosus and a case of lichen pilaris; plate xxxv, that shows a confluent eruption caused by potassium bromide given to a child for restlessness; plate lxix, that shows the face and hand of a patient affected with tuberculated leprosy; and plate lxx, that illustrates a case of anæsthetic leprosy.

The fifth fasciculus contains plate xviii, that portrays an interesting case of that rare and fatal affection, pemphigus foliaceus; plate xxx, which shows a case of pityriasis rosea; plate xlv, which illustrates a case of the uncommon ichthyosis hystrix unilateralis; plate xlviii, which shows two examples, one of the band, the other of the patch, form of scleroderma circumscriptum; plate lv, which represents a case of papillary pigmented, and two views of an uncommon case of unpigmented convoluted, mole; and plate xcii, that shows the circumscribed, the diffuse, and the kerion forms of tinea tonsurans.

The sixth fasciculus contains plate vi, which portrays a case of the nodular type of urticaria pigmentosa, that was first described under the title of xanthelasmoidea; plate vii, which illustrates the vesicular and pustular forms of eczema; plate xx, which depicts hydroa herpetiformis; plate xxiii, which represents psoriasis; plate lvi, that shows a case of that rare disease, xeroderma pigmentosum; and plate lxxvii, which represents a case of melanotic and one of secondary sarcoma.

In the seventh fasciculus are plate vii, illustrating prurigo; plate xiii, which shows cases of impetigo contagiosa bullosa, of impetigo contagiosa e pediculio, and of that form of impetigo contagiosa called ecthyma; plate xix, which represents a case of that severe and fatal disease pemphigus vegetans; plate xxvii, which shows an example of psoriasis gyrata, the lepra of Willan; plate l, which is a good representation of a case of elephantiasis tropica; and plate liii, which shows the face of a patient affected with chloasma uterinum, also her hands and forearms, that are affected with leucoderma and melanoderma.

The eighth fasciculus contains plate xvi, which portrays cases of herpes ophthalmicus and of herpes febrilis; plate xxiv, which shows acute and chronic psoriasis; plate xxxviii, which represents two forms of skin discoloration produced by drugs, argyria and chrysarobin erythema; plate xl, which shows gangrene of the foot from cold; plate lix, which illustrates xanthoma diabeticorum; and plate lxxvi, which shows several of the forms of rodent ulcer and epithelioma.

The ninth fasciculus contains plate xxi, that represents hydroa herpetiformis of the leg, the breast, and the arm, one of the illustrations showing very admirably the distinction between this disease and pemphigus, that, as the author states, probably depends upon the clinical morphology and not upon any fundamental difference in the pathology; plate xxv, which illustrates a case of psoriasis punctata in which there was but a moderate degree of scaliness; plate xxix, which shows a case of pityriasis rubra, the history of which is interesting because thyroid extract was given for a time with the effect of reducing the hyperæmia, but in which, syphilitic infection being suspected, the patient was placed on proper treatment and a cure resulted; plate xliv, which depicts extreme forms of ichthyosis of general distribution, also four instances of keratosis; plate xlvi, which shows a case of ichthyosis congenita in a child a month old; and plate lxv, which represents three forms of lupus erythematosus.

The great essential for an atlas of skin diseases is that the portraits shall be good, and this requisite is met in this work. The wide experience and excellent judgment of the author should be assumed to be a sufficient guarantee of the care with which the different illustrations would be selected, and this half of the work fully confirms the correctness of such an assumption. The text is short, but clear and practical, describing the details of the case, the varieties of the disease, and the methods of treatment.

A Pictorial Atlas of Skin Diseases and Syphilitic Affections in Photo-lithochromes from Models in the Museum of the St. Louis Hospital, Paris. With Explanatory Woodcuts and Text. By Ernest Besnier, Physician to the St. Louis Hospital, etc.; A. Fournier, Professor of the Faculty of Medicine, etc.; M. Tenneson, Physician to the St. Louis Hospital; M. Hallopeau, Professeur agrégé of the Faculty of Medicine, etc.; M. Du Castel, Physician to the St. Louis Hospital. With the Co-operation of Henri Feulard, Curator of the Museum, and Léon Jacquet, Secretary of the Dermatological Society of France. Authorized English Translation. Edited by J. J. Pringle, M. B., F. R. C. P., Assistant Physician to and Physician to the Department for Diseases of the Skin at the Middlesex Hospital, London. Part I. London: F. J. Rebman, 1895. [Price, 10*s*. 6*d*.]

The publishers state that this atlas is intended as a pictorial representation of several of the famous models of dermatological and syphilitic cases made by Baretta for the St. Louis Hospital, of Paris, representing typical cases of common diseases. For the better understanding of the plates these will be reproduced in woodcuts by photo-lithography. The editor states that he will confine his annotations to questions of nomenclature; his principal effort will be to insure the accuracy of the English translation.

The plates in this part illustrate agminate lupus vulgaris of the center of the face, dermatitis herpetiformis, vulvar syphilitic chancre, and patchy purpuric erythema appearing in successive crops. These plates are beautifully colored reproductions of the models; and the text, in each case signed by the author, describes the condition, gives a history of the case, and refers to the symptomatology, diagnosis, and methods of treatment.

The work promises to be a very useful contribution to the illustrated literature of skin diseases.

We would advise the publishers, in mailing the parts, to protect them so that they can not be bent by folding, thus spoiling the appearance of the plates.

A Book of Detachable Diet Lists. For Albuminuria, Anæmia, Debility, Constipation, Diabetes, Diarrhœa, Dyspepsia, Fevers, Gout or Uric-acid Diathesis, Obesity, Tuberculosis, and a Sick-room Dietary. Compiled by Jerome B. Thomas, A. B., M. D., Visiting Physician to the Home for Friendless Women and Children, etc. Philadelphia: W. B. Saunders, 1895. [Price, $1.50.]

This collection of diet lists and the accompanying sick-room dietary is a convenience that will be appreciated by the physician, who is so often asked what his patient may eat. A suitable form is torn off, additions or alterations may be made if required, and with little trouble the patient's want is supplied.

Transactions of the Antiseptic Club. Reported by Albert Abrams, a Member of the San Francisco Medical Profession. Illustrated. New York: E. B. Treat, 1895. Pp. 7 to 206. [Price, $1.75.]

Humor, like other things, has its varieties, and in the wide range between that of Rabelais and of Jerome K. Jerome, for example, there is a field that may be filled by the variety contained in this volume. It is occasionally clever, and one feels that the author is not without merit, but that is the best we can say of it.

BOOKS, ETC., RECEIVED.

Ectopic Gestation. Its Ætiology, Classification, Embryology, Diagnosis, and Treatment. By J. Clarence Webster, B. A., M. D., F. R. C. P. Ed., Assistant Professor of Midwifery and Diseases of Women and Children in the University of Edinburgh. With Eighty Illustrations of Naked-eye and Microscopic Appearances. New York: Macmillan & Co., 1895. Pp. xiii–233. [Price, $3.75.]

On Diseases of the Vermiform Appendix. With a Consideration of the Symptoms and Treatment of the Resulting Forms of Peritonitis. A Dissertation presented to the University of Oxford for the Degree of Doctor of Medicine in April, 1894. By Herbert P. Hawkins, M. A., M. D. Oxon., F. R. C. P., Assistant Physician to and Lecturer on Pathology at St. Thomas's Hospital, etc. London and New York: Macmillan & Co., 1895. Pp. vii–139. [Price, $2.25.]

Atlas of Diseases of the Skin. In a Series of Illustrations from Original Drawings, with Descriptive Letterpress. By H. Radcliffe Crocker, M. D., F. R. C. P., Physician to the Department for Diseases of the Skin, University College Hospital, London. Fasciculus IX. Edinburgh and London: Young J. Pentland. New York: Macmillan & Co., 1895. [Price, $6 each part.]

Dissections Illustrated. A Graphic Handbook for Students of Human Anatomy. By C. Gordon Brodie, F. R. C. S., Late Senior Demonstrator of Anatomy, Middlesex Hospital Medical School, etc. With Plates Drawn and Lithographed by Percy Highley. In Four Parts. Part IV. The Abdomen. With Sixteen Colored Plates (two thirds natural size), two of which are double, and Thirteen Diagrams. London and New York: Whittaker & Co., 1895. Pp. 116 to 136. [Price, 10*s*.]

Affections chirurgicales des membres. Statistique et observations. Par le Dr. Polaillon, chirurgien de l'Hôtel-Dieu, etc. Paris: Octave Doin, 1895. Pp. 14 to 810.

Transactions of the Medical Society of Virginia. Twenty-fifth Session. Richmond, Va.

The Influence of Pregnancy upon Dental Caries. By Reuben Peterson, M. D., Grand Rapids, Mich. [Reprinted from the *Dental Cosmos.*]

Our Insane Patients and their Hospital Relations. By Charles A. Ring, M. D., Buffalo. [Reprinted from the *Buffalo Medical and Surgical Journal.*]

The Twenty-second Regular Report of the Medical and Surgical Staff of St. Francis's Hospital, for the Year 1894.

Dislocation and Double Fracture of the Upper Third of the Humerus. By B. Merrill Ricketts, M. D., Cincinnati. [Reprinted from the *Journal of the American Medical Association.*]

Typhoid Ulcer; Perforation (?); Operation; Death. Cerebral Cyst; Operation; Recovery. By B. Merrill Ricketts, M. D. [Reprinted from the *Cincinnati Lancet-Clinic.*]

Direct Fixation in Fractures. By B. Merrill Ricketts, M. D. [Reprinted from the *Times and Register.*]

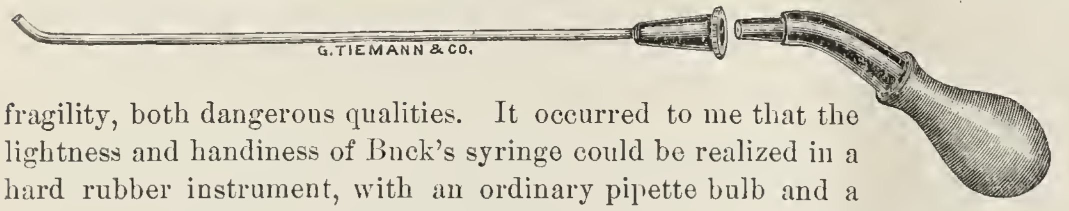
Practical Chapters on Static Electricity. By S. H. Monell, M. D. [Reprinted from various medical journals.]

New Inventions, etc.

PIPETTE MIDDLE-EAR SYRINGE.

By William S. Cheesman, M. D.,
AUBURN, N. Y.

Having experienced difficulty in using the ordinary ball syringe for washing out the middle ear through perforations of the membrana tympani, I recently sought some smaller and less cumbersome instrument. The elongated glass pipette suggested and used by Buck seemed very good, except for its stiffness and fragility, both dangerous qualities. It occurred to me that the lightness and handiness of Buck's syringe could be realized in a hard rubber instrument, with an ordinary pipette bulb and a fine flexible rubber tip, curved slightly at the end for ready introduction into perforations. This has been made very beautifully by Tiemann & Co., as shown in the illustration. I have taken great satisfaction in the use of the instrument, and feel no hesitation in recommending it to those who need a light, small, safe middle-ear syringe.



Miscellany.

Esmarch's Hæmostatic Bandage.—At a subsequent meeting of the same society, Dr. John H. Brinton said: "The few remarks I have to make on the subject do not rise to the dignity of a paper; I simply wish to bring to the consideration of the academy some objections to, or dangers from, the use of Esmarch's bandage as a constricting and controlling band. I have used the elastic bandage for many years, and I have had several cases in which the results were not altogether satisfactory.

"For instance, a number of years ago I operated at my clinic upon a woman who suffered from some serious bone disease of her leg. The Esmarch bandage was applied from the foot to the lower thigh, and the constricting band (the India-rubber tubing first in vogue) was placed just above the knee by a skillful hospital colleague, now deceased. There was no bleeding during the operation. The bandage had been applied and the operation was begun with the leg semiflexed upon the thigh, but during the operation the limb was extended. After the operation was finished I found that the constricting band had deeply divided the muscular tissues, posteriorly, almost to the bone. The large vessels and nerves were not injured. This damage resulted, not from the direct constricting force or pressure, but from the tearing of the tissues, firmly fixed above, by the extension of the leg during the operation. I was much annoyed by the accident, and dreaded the results. The patient, however, made a very good recovery; but the incident made a deep impression upon my mind.

"In this connection, I ask if any injurious effects of a similar kind have ever been noticed by the fellows of the academy from the movement of the limb after the constricting band had been applied. Of course, we all know that the first roller should not be applied too tightly over an ulcerating surface or a tumor, for fear of driving morbid material from the affected spot into the general circulation. There is another point about which I would like to ask the experience of the academy. It is in relation to the Esmarch bandage and secondary hæmorrhage. A few weeks ago I made use of the Esmarch on a case of amputation at the knee joint. This is an amputation that I had done many times during our late war, and had then often noticed a tendency to consecutive secondary hæmorrhage. In the two cases upon whom I did this amputation about a month ago I found a troublesome hæmorrhage coming on about six hours afterward. I operated about two o'clock and was called about eight o'clock on account of bleeding. It was not in either case a free hæmorrhage, but rather a persistent oozing from tissues which did not bleed at the time of operation. It came from the superior articular branches, and not from the azygos or inferior articular vessels, as the popliteal artery had been divided on the line of the articulation above their usual origin. I was obliged to open the stump and apply eight or ten ligatures to arrest the hæmorrhage. I am unable to tell whether this hæmorrhage was produced indirectly by the rubber constricting band or whether it resulted from some peculiarity of the case. It is possible that the band may have exerted undue pressure on the smaller vessels, producing vaso-motor paresis, impairing their contractile power, and so have favored a post-operative enlargement, and a consequent reactionary or consecutive bleeding.

"In our old war times I have participated in many amputations at the knee, and I am certain that I have often noticed this tendency to consecutive hæmorrhage. My object in bringing up this subject was to ask if any fellow of the academy has at any time observed any evil effects from the constricting band of the Esmarch apparatus, and also whether secondary hæmorrhage may not be the result of its use."

In the discussion Dr. H. R. Wharton said: "I would ask if Dr. Brinton has noticed any difference as regards hæmorrhage when the roller is applied first and the constricting band second and when the constricting band is used alone?"

Dr. Brinton said: "I have always used the first method, and can not, therefore, answer from my own experience."

Dr. Wharton said: "I think that there is always more hæmorrhage after applying the elastic bandage, followed by the elastic strap, than by simply applying the strap. I think that there is a likelihood that the band is applied too tightly in many instances. The secret is in applying it with just sufficient force to do no damage, and simply to temporarily control the circulation. I have seen no cases injured by the use of the Esmarch tube or strap, but think its use is likely to produce more consecutive hæmorrhage. Owing to a death from consecutive hæmorrhage after the use of the Esmarch bandage a number of years ago, we have not, at the Children's Hospital, for many years used the Esmarch bandage or strap in cases of excision of the knee joint. The most satisfactory use of the

Esmarch bandage is for operations upon bone, for necrosis or caries. Another use for the Esmarch is in searching for foreign bodies, such as needles, etc., in the tissues; the search can be made with so much more comfort and with a greater chance of finding the foreign body if we first apply the Esmarch bandage and render the parts perfectly bloodless."

Dr. W. Barton Hopkins said: "I can fully corroborate the statement regarding the risk of applying the circular turns of Esmarch too tightly, as I have for several years been in the habit of demonstrating the immense constricting force which these turns are capable of exerting. By drawing each turn with the utmost tension around a bit of white pine wood a decided crease may be made in it, fully demonstrating its power and giving an object lesson which is not easily forgotten."

Dr. Joseph Hearn said: "The Esmarch is generally applied too tightly. It is not necessary to use so much force. I can make a part bloodless simply by the application of my hand. My experience has been limited with secondary hæmorrhage, as I have had no secondary hæmorrhage. I apply the Esmarch very lightly, and always apply it myself. I only apply ligatures to the larger vessels, and have never had occasion to open a stump for secondary hæmorrhage."

Dr. Barton said: "I have nothing to add to what has been said, except that in cases of resection for ununited fracture I have found the Esmarch bandage unsuited, on account of the large amount of blood thrown out afterward. In operating for ununited fracture of the humerus I would not use the Esmarch bandage, as I have had to remove the permanent plaster dressings for this cause."

Dr. Mears said: "I was so much impressed with the harmful effects of the tube of the Esmarch apparatus that I substituted for it a flat rubber band, and reported its use in two operations in the *Philadelphia Medical Times*, August 15, 1874. I have seen a number of evil effects from the application of the tube, such as paralysis from pressure upon the nerves. I always use the band in preference to the tube, as being less injurious."

Dr. William H. Taylor said: "I have seen the Esmarch bandage applied too tightly, and have myself been very careful in this respect. In excision of the knee I have usually done without the roller bandage, and have used a wide band for the purpose of constriction. In all these cases there is a good deal of oozing, and after excision of the knee this oozing is decidedly increased by the use of the bandage."

Dr. Thomas S. K. Morton said: "With regard to the Esmarch roller bandage, I seldom use it any more for operations on the extremities, having had demonstrated to me when in Glasgow by Mr. Macewen his method of making the limb bloodless. By elevating the limb for a few minutes we observe after a time that a spasm of the blood-vessels occurs and the limb becomes bloodless, and then the constricting band can be applied. With regard to the application of the bandage, I do not intrust this to an assistant, but always apply it myself. I always use the narrow strap and not the tube. I take this opportunity of saying that the Esmarch apparatus, as sent out by the instrument makers, is usually defective, because the bandage is too narrow; it should be wider. With regard to the paralysis following the application of the constricting band, it is most liable to occur when it is used just above the knee or elbow, and especially the latter, on account of the course of the musculo-spiral nerve. This occurs so frequently that we should prohibit the use of the Esmarch bandage around or above the joints."

Dr. Brinton said: "As a matter of historic record and justice, I wish to say in regard to Dr. Morton's description of the method of making a limb bloodless, as practiced by Macewen, that this method probably antedates the present day. I saw it practiced many years ago at the Jefferson College by the late Professor Joseph Pancoast."

The President: "I also remember seeing Dr. Pancoast applying a broad bandage to a limb in order to reduce the amount of blood in it, and take off the bandage before the operation. This was long before the Esmarch bandage was used."

Dr. Thomas S. K. Morton: "I think that I have been misunderstood. There was no bandage applied by Macewen; he simply elevated the limb and produced a contraction of the arterioles, which made the limb bloodless before applying the strap."

The President: "It is very remarkable in Dr. Brinton's case that the tissues were divided. Were the muscles cut or only the skin?"

Dr. Brinton: "The skin was torn slightly at one point and the muscles were distinctly cut through. I have not seen this accident mentioned in treatises on surgery, but in the *American Text-book of Surgery* it is stated that there should not be any motion of the limb after the band has been put on."

The President, Dr. Thomas G. Morton, said: "I have done very many operations upon the knee, but no amputations at the knee joint since the war. I have not, in many years, had any secondary hæmorrhage."

Dr. Wharton added: "I have recently seen very little secondary hæmorrhage. I had a case of reamputation of the leg last summer, where I had to apply the Esmarch bandage where consecutive hæmorrhage occurred, and I had to open the stump and tie the vessels. I have not noticed any special liability to hæmorrhage after operations at the knee joint."

The President asked: "In amputating at the knee, did Dr. Brinton remove the condyles or leave them?"

Dr. Brinton replied: "I referred rather loosely to these amputations as 'at the knee.' In each case I sawed off a portion of the condyles, if necessary to bring the flaps together, but there was not any hæmorrhage from the bone."

The President asked: "What was the nature of the injury or disease?"

Dr. Brinton answered: "Both were cases of sarcoma."

Dr. T. S. K. Morton said: "Might not that have been the cause of the hæmorrhage? I have noticed that in cases of operation for sarcoma there was much more tendency to bleeding than in ordinary amputations for injury. The vessels are often enlarged."

Dr. Brinton said: "The vessels did not appear enlarged."

Dr. Hopkins remarked: "I have not seen any hæmorrhage, except after sloughing."

Dr. Hearn said: "I have not had any experience of this kind, and never have opened a stump for hæmorrhage."

Dr. Brinton said: "I might say, to correct a possible misapprehension, that, although I have of late years done many amputations, these are the only two in which secondary hæmorrhage has occurred."

The Nebraska State Medical Society.—The twenty-seventh annual meeting will be held at Grand Island, on May 21st, 22d, and 23d, under the presidency of Dr. H. B. Lowry, of Lincoln. The programme includes the following papers: Malarial Disease in Children, by Dr. W. F. Milroy, of Omaha; A Few Notes on La Grippe, by Dr. W. C. Robinson, of Clarks; The Small Intestine in Medicine, by Dr. J. S. Foote, of Omaha; Where are We At? by Dr. Charles Inches, of Scribner; The Treatment of Diphtheria, by Dr. W. H. Christie, of Omaha; The Rational Drug Therapy of Typhoid Fever, based upon Bacteriological Investigation and the Observation of One Hundred and Sixty-seven Cases with Three Deaths, by Dr. O. Grothan, of St. Paul; The Treatment of Typhoid Fever, by Dr. W. F. Milroy, of Omaha; Introduction to the Subject of Obstetrics, by Dr. J. Lue Sutherland, of Grand Island; The Evil Practices of the So-called Midwife, by Dr. Georgiana Grothan, of St. Paul; The Remote Effects of Abortion, by Dr. B. F. Crummer, of Omaha; The Survival of Superstition in Obstetrics, by Dr. H. Gifford, of Omaha; Traumatisms and Chronic Irritations as Causative Factors of Tumors, by Dr. B. B. Davis, of Omaha; The Diagnosis of Diseases of the Stomach, by Dr. H. M. Everett, of Lincoln; Tarsal Deformities in Congenital Talipes Equinovarus—the Wollf Method of Treatment in Selected Cases Illustrated, by Dr. W. Ross Martin, of Omaha; Aseptic Surgery in General Practice, with a Report of Selected Cases, by Dr. J. P. Lord, of Omaha; The Operative Treatment of Varicose Veins of the Legs, by Dr. J. E. Summers, Jr., of Omaha; Cholecystotomy, with a Report of Cases, by Dr. F. E. Coulter, of Omaha; When, Where, and How the Surgeon should Operate, by Dr. W. O. Henry, of Omaha; Ectopic Gestation, by Dr. A. F. Jonas, of Omaha; The Relation of the Medical Profession to our Hospitals, by Dr. B. F. Crummer, of Omaha; Ophthalmia Neonatorum, by Dr. M. H. Garten, of Lincoln; The Treatment of Perforating Wounds of the Eyes, by Dr. D. C. Bryant, of Omaha; Senate File 162, by Dr. J. V. Beghtol, of Friend; Catching Cold, by Dr. John W. Bullard, of Pawnee City; Empyema of the Maxillary Antrum, with Cases and their Treatment, by Dr. F. S. Owen, of Omaha; The Interdependence of Chronic Ear, Throat, and Nose Affections; their Clinical Histories, by Dr. George Wilkinson, of Omaha.

Football Injury of the Knee.—The *Centralblatt für Chirurgie* for April 20th contains a summary of an article, published in the *Hospitals-Tidende*, by Dr. Maag, who is the physician to a school where the pupils are much given to football. He has observed a great number of quite similar lesions of the knee as the result of playing this game. The lesion consists of an inflammation of the patellar bursa. He ascribes it to the disproportion between the size and the weight of the ball, on the one hand, and, on the other hand, between the muscles and the tendons which set the ball in motion. The ball is moved by the vigorous contractions of the quadriceps femoris, which are spent on the ligamentum patellæ. By the repeated occurrence of this action he thinks the bursitis is brought about. Dr. Rovsing, who made the abstract for the *Centralblatt*, thinks that the trouble is rather to be imputed to slight hæmorrhages.

The American Gynæcological Society.—The twentieth annual meeting will be held in Levering Hall, Johns Hopkins University, Baltimore, on May 28th, 29th, and 30th. The programme includes the following papers:

Recent Experience in Ureteral Work, by Dr. Howard A. Kelly, of Baltimore; Suprapubic Hysterectomy, by Dr. B. F. Baer, of Philadelphia; Hysterectomy for Uterine Fibroids, by Dr. S. C. Gordon, of Portland, Me.; The Use of Traction and Morcellation for the Removal of Fibroids, by Dr. T. Addis Emmet; Ligation of the Pedicle with Catgut, by Dr. Archibald MacLaren, of St. Paul; Abdominal Section for Puerperal Septicæmia, by Dr. J. Montgomery Baldy, of Philadelphia; The Present Treatment of Uterine Displacements, by Dr. Paul F. Mundé; Alexander's Operation, by Dr. Clement Cleveland; My Experience with Ventro-fixation and Alexander's Operation, by Dr. A. Lapthorne Smith, of Montreal; the President's Address; Renal Insufficiency in Gynæcological Cases, by Dr. James H. Etheridge, of Chicago; Total Extirpation of the Uterus, by Dr. Charles Jacobs, of Brussels; Vaginal Hysterectomy for Conditions other than Suppuration and Malignant Disease, by Dr. Ernest W. Cushing, of Boston; Vaginal Hysterectomy for Uterine Myomata and Diseases of the Annexa, by Dr. William H. Wathen, of Louisville; Specimens Removed by Vaginal and Abdominal Hysterectomy, by Dr. R. Stansbury Sutton, of Pittsburgh; The Treatment of Puerperal Eclampsia, by Dr. Thaddeus A. Reamy, of Cincinnati; The Prophylaxis and Treatment of Eclampsia, by Dr. Edward P. Davis, of Philadelphia; Deep Incision of the Parturient Cervix for Rapid Delivery, by Dr. J. Clifton Edgar; Trachoma of the Female Genito-urinary Tract, by Dr. Arthur W. Johnstone, of Cincinnati; Conservative Surgical Treatment of Septic Pelvic Disease, by Dr. Fernand Henrotin, of Chicago; The Ultimate Results of Trachelorrhaphy, by Dr. Willis E. Ford, of Utica; True Pelvic Cellulitis, by Dr. Ely Van de Warker, of Syracuse; The Prevention of Uterine Disease due to Childbearing, by Dr. W. Gill Wylie; Deciduoma Malignum, by Dr. J. Whitridge Williams, of Baltimore; The Value of Gauze Drainage, by Dr. Henry C. Coe; Symphysiotomy in Canada and the United States, by Dr. Robert P. Harris, of Philadelphia; Late Infection in the Puerperal State, by Dr. Egbert H. Grandin; Artificial Abortion, by Dr. Henry J. Garrigues; In Memoriam—Dr. William Goodell, by Dr. Barton C. Hirst, of Philadelphia.

The Use of Alcohol in Diseases of Children.—Dr. August Seibert, in an article on The Uses of Alcohol in Sick Children, published in the May number of the *Archives of Pædiatrics*, considers first its application in the gastro-intestinal diseases. He makes the general statement that we can exclude all forms of gastro-intestinal disturbance in children from the list of diseases in which alcohol is beneficial. In acute cases, even in cholera infantum, large quantities of water with a small amount of black coffee or tea will stimulate better than alcohol. It is besides not irritating to the mucous membrane, already in a diseased condition. It is especially irrational and harmful to administer alcohol in the diarrhœas of children before the stomach and bowels have been freed from all putrefying material.

In typhoid fever he rarely gives alcohol to children or adults. In children the disease usually runs a mild course, and seldom relapses if proper diet is adhered to. Stimulation is rarely required.

In fibrinous pneumonia and broncho-pneumonia in children the author disapproves of the enormous quantities of alcohol which are frequently given. He does not use it in pneumonia, except when collapse threatens or is present. Then he uses it in large doses and in concentrated form. Alcohol-fed children will digest less perfectly in pneumonia than those whose stomachs have not been insulted in this way. Children who have received large amounts of alcohol do not regain their appetite and digestive power after the attack is over as those do who are treated without it.

In scarlatina alcohol is not tolerated by the stomach during the first few days. In severe cases the author has not seen any good results following its use. In mild cases it is out of place. The same is true of measles. In septic conditions during scarlet fever the judicious use of light wine sometimes seems to be beneficial.

In diphtheria the free use of alcohol has been universal. In mild cases the author does not administer it. Whenever the heart seems to fail he uses it in large doses, but only for a short time. As most cases of diphtheria are of mixed infections, it is proper to assume that the heart weakness may be caused by some of the other germs rather than by the specific bacillus. In emergencies he uses large doses, but for short periods. In nephritis alcohol in large doses can only do harm.

The Massachusetts Volunteer Militia.—The *Boston Medical and Surgical Journal* announces that Dr. Edward J. Forster, of Boston, has been appointed surgeon-general.

Lectures and Addresses.

THE WESLEY M. CARPENTER LECTURE.*

By JOSEPH D. BRYANT, M.D.

PROLOGUE.

I DESIRE, Mr. President, before beginning, to state something of the reasons that actuated me in the selection of this subject for the evening's consideration. While I know full well that I shall say nothing essentially new to-night, yet it occurred to me that perhaps it is not generally known that a steady increase of malignant disease is taking place in all civilized countries, notwithstanding the opposition of modern methods of treatment. In view of this fact it also seemed to me both proper and urgent that I should emphasize the necessity of greater efforts on the part of all concerned to resist this advance. The increased surveillance that is now being employed to defeat the attacks of the more common forms of disease is yielding rewards highly creditable to the forethought and assiduity of the profession. Therefore, may not increased effort, based on logical methods, do something to lessen the gravity of malignant infliction? It is proper too, at this time, that I express my grateful appreciation to those of my friends who have aided me in this endeavor. I mention especially Dr. Roger S. Tracy, of the Health Department of this city, whose knowledge of vital statistics is equaled only by a few, and exceeded by none. Dr. George B. Stewart gave me untiring and intelligent support. Dr. Erdmann, Dr. Titterington, and Dr. Doty also contributed ably to the efforts of the others. It is to be regretted that the time at hand did not permit me to overcome the obstacles that were interposed between the anticipated results and the products of the endeavor. I wish through you, sir, to thank the Council of the Academy for the honor conferred on me, and for the expression of confidence which the selection implied, and finally, I hope that any feeling of disappointment that may come to-night as the result of the selection, will be tempered by mercy and charity for the speaker.

IMPORTANT FACTS RELATIVE TO MALIGNANT DISEASE.

The subject of malignant disease is not a new one. The warp and woof of its texture have been spun again and again. Various figures of thought, shades of opinion, with bright perspective, all tinted with hope, have been woven in the fabric only to fade away, giving place to others of a newer pattern, of fresher tints, better symmetry, and, perhaps, of greater endurance. The spinning still goes on, supported by increased opportunity, encouraged by extended experience, and stimulated by the hope of relieving humanity of one of the most inflexible and cruel tyrants in the list of human afflictions. The encroachments of the common foes of human desire stimulate opposition and multiply the number and force of the expedients best intended to resist invasion. The commendable and selfish efforts of those of great power, of unlimited means, and of extended influence are often made irresistible by the forethought, wisdom, and assiduity exercised for their advancement. Those of the human family who are thus circumstanced achieve great results for good and evil, and the opposition which they encounter, while it stimulates the utmost endeavor, nevertheless leavens the result, and the best is thus secured. Men strive for wealth and power that they may gain those things which wealth and power command: the pleasures and comforts of life; the high station in affairs that begets the confidence, respect, and love of fellow men. Men struggle for health and life for the personal comforts and possibilities that they proffer, and to defer that presence which all dread and yet none escape. Man's battle for wealth, power, and fame is largely an individual one, for which he alone has made the attainment possible. Still, the influences that surround him, the interests that support him, and the principles that claim him, lead directly to the consummation.

Man's battle for health and life is principally a subsidiary one; and the conflict is hardly more than a skirmish on his own part, until he fears defeat. Then he calls a council of war and abides the decision. Thenceforth he is a passive agent, endowed with a responsive intelligence which invites the fullest consideration of his council—the medical advisers.

Whether or not those who are inherently charged with the custody of man's health exercise the same untiring scrutiny and indefatigable vigilance in his physical interest that he himself puts forth to secure pecuniary, official, or social advancement is a question of grave significance, whose answer should not be estimated except on the basis of recorded facts relating to disease. That an increased and concerted effort on the part of the medical profession directed against the hastening pace of malignant invasion is most urgent, is emphasized by the fact that this form of disease is increasing gradually and surely in nearly all civilized countries.

Whether this increase be an apparent one, due alone to the better means of diagnosis, or whether it be an assured one dependent on the influences of civilization, it is difficult to determine. At all events, it matters but little indeed for our present purposes which of these factors is the dominant one, since, that malignant disease is present and must be fought with the resources now at our command is self-apparent to all. Let us hope that a better knowledge of these circumstances will augment the vigilance of the physician in the same degree that it stimulates the aggressiveness of the surgeon. Already the period of post-operation immunity is increased, dependent, no doubt, on the closer observance of disease manifestations and a prompter and more thorough application of the recognized means of relief.

In war, as in well-studied contests for attainment in every other avenue of human activity, the attacking force considers the necessities that justify the combat; then determines the logical lines of the enemy's advance, and finally estimates the sacrifices of defeat and the costs of the struggle before engaging in the conflict. Permit me now to enlist your attention and support in the battle against malignant disease through the same line of action as that which characterizes human conflicts often of the basest nature.

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* Delivered before the New York Academy of Medicine, November 15, 1894.

The necessities that justify the combat relate to the loss of human life from the disease and the consequent sorrow and suffering dependent on the sacrifice. Each year the admonitions to duty are repeated with ever-increasing emphasis by the augmenting death record due to malignancy, as revealed by the vital statistics of this and other countries. Permit me to invite your attention for a moment to the established verdict of these statistics.

One has but to glance at the mortality tables here presented to be convinced that malignant disease exacts each year of the strength, comfort, and peace of a commonwealth a constant and liberal toll; and when it is remembered that this ever-increasing demand is inexorable in the procurement, notwithstanding the fact of the interposition of modernized methods of opposition, then indeed it behooves all, lay and professional alike, to unite in a tireless and vigilant crusade against a common, subtle, merciless foe. In 1889 England lost 18,654 of her people from cancer (No. 1), this number being 3·6 per cent. of the entire death-rate for the year, giving an increase of two per cent. since 1865. A more careful estimate shows that the mortality there of the last ten years exceeds that of the preceding ten by 0·85 per cent., which is surely a decided advance. In 1893 London alone lost 3,412 of her population from cancer, this being a percentage of 3·73 of the total deaths for that year (No. 2). This is the highest death-rate from cancer there since 1889; then it was 3·92 per cent., a difference of two per cent. between this date and 1869. The percentage of the last ten years is 3·54, that of the preceding ten years 2·67, giving an increase in favor of the latter period of 0·87 per cent. It is interesting to note the fact that the death-rate from cancer of England and Wales, exclusive of London, in 1892 was 3·62 per cent. of the total death-rate or 0·67 to the thousand living (No. 3). The detailed statistics of Scotland in 1888 (No. 3) bearing on the deaths from cancer show that in the smaller towns the death-rate from cancer to a "thousand living" is less than in the larger ones, and that in some cities and towns the rate is largely in excess of the rates of neighboring cities and towns.

The annual report of the registrar general of England for 1889 (pp. 13 to 18) contains a discussion on the apparent increase of cancer, from which the following extracts are taken:

"The deaths ascribed to cancer—using that term as a general designation for all malignant new growths—show a further increase upon the ever-growing rates previously recorded. Some of this increase is most certainly attributable to increased accuracy in statement of cause, and to the system introduced some years back of writing for further information in cases where some vague cause, such as 'tumor,' has been given as the cause of death in the original certificate. Nevertheless, in face of the constant and great growth of mortality under this heading, and the expressed belief of medical practitioners specially engaged in dealing with this class of diseases that they are really becoming more and more common, it seems scarcely possible to maintain the optimistic view that the whole of the apparent increase can be thus explained; and it must be admitted, as at any rate highly probable, that a real increase is taking place in the frequency of these malignant affections."

If we examine the cancer statistics of Italy for the year 1889 it will be found that in the less populous portions of this country the death-rate from cancer is less per "thousand living" than in the more populous provinces (No. 4). In the city of Berlin, in 1892, "cancer and tumors" claimed 1,138 of the people, which is 3·48 per cent. of the total deaths of that year. This percentage is the highest ever recorded there from "cancer and tumors." In 1877 a percentage of 2·10 is noted, giving an apparent increase of 2·38 per cent. in fifteen years. The comparative increase by ten-year periods can not be estimated, owing to the incompleteness of the records (No. 5). In 1890 1,009 persons died of cancer in Vienna. This number constituted 4·96 per cent. of her total death-rate for that year. The last half of the sixteen years ending with 1890 shows an increase in the death-rate for cancer of 0·84 per cent. over the first half of the same period (No. 5). In Paris (No. 6), in 1893, 4·61 per cent. of the total deaths were due to cancer. In Munich (No. 6), in 1892, 3·98 per cent., and in Hamburg, in 1889, 3·78 per cent. of the total deaths were caused by cancer (No. 6). While the percentage is larger in the last three cities, yet no decided change for the worse is noticeable. Permit me now to direct your attention to those cities with which we are all in touch, and therefore we feel for them a personal as well as professional concern. The average death-rate from cancer in New York city during the last ten years is 2·17 per cent. of the total mortality (No. 7), but that of the preceding ten years only 1·82 per cent. Surely these figures are indicative of an increasing mortality from cancer. In the last twenty years 14,369 persons have perished from cancer here, an average of about 718 per annum. It is important to notice that the death-rate from cancer in the State of New York in the years 1885, 1886, and 1887 was 2·37 per cent. of the total death-rate of those periods, and that this rate is 0·20 per cent. greater than the average death-rate of the city of New York during the last decade.* This appears to indicate that the death-rate from cancer in the State at large is greater than in the city. According to a computation made by the late Dr. Carroll, of this city, it appears that the death-rate from cancer in the maritime portions of the State is much less than anywhere else within its limits, and that the greatest death-rate from cancer in the State is in the southern tier of counties. However, if a closer study of these figures be made, and the estimates be based on the death-rate from cancer to the "thousand living," then the strange results of Dr. Carroll's estimates are supplanted by a comparative death-rate in those sections of the State that is in entire conformity with such death-rates elsewhere in the world (No. 9)—that is, greater in the city than in the country districts. In Philadelphia the average death-rate of cancer for the last ten years is 2·24 per cent. of the total mortality, while that of the preceding ten years is 2·28 per cent. (*vide* No. 7). These figures appear to indicate a decrease in the frequency of deaths from cancer, were it not for the fact that during a year of the first ten years (1883) the death-rate showed the enormous and strange increase to 3·90 per cent., or nearly 1·5 per cent. above that of any recorded year of that city. However, in 1890 the recorded rate of death from cancer fell to 0·99 per cent. This rate, too, is likewise extraordinary, since it equals only half the percentage of death from cancer in 1876, which year had the smallest rate but one (1875) of the entire twenty years. It seems, therefore, not unfair to exclude these illogical percentages and base the estimate on those of the remaining eighteen years. If this be done, then an increase of 0·26 per cent. during the last nine years is apparent. I will not weary you with further detail, but will state briefly that the record of the last ten years reveals an increase from cancer greater than those of the preceding ten years of 0·54 per cent. in Boston (No. 8), 0·64 per cent. in Baltimore, 0·52 per cent. in New Orleans (No. 11), and 0·84 per cent. in San Francisco (No. 11). These examples are, in my judgment, quite sufficient to establish the fact of the gradual increase of the death-rate from cancer in these localities. It will be noticed that many of the preceding computations are based on the relation of the death-rate from cancer to the total death-rate of each city and country considered. This method gives less accurate results than estimates based on the percentage of deaths from cancer to the "thousand living," owing to the influence on the cancer percentage of the variations in the death-rate due to other causes. However, the uniformity of the death-rate from other causes in the majority of the preceding illustrations does not cause a material change in the result when compared with the latter method of computation. Other cities were asked for records bearing on the question, but as yet they have failed to respond.

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* *Transactions of the New York State Medical Association.*

The following table is very instructive as bearing on the increase of cancer in the United States:

YEAR.	Population.	Total deaths.	Deaths from cancer.	Cancer deaths per 100,000 from all causes.	Cancer deaths per 100,000 living.
1850....	23,191,876	323,023	2,088	646	9·0
1860....	31,443,321	394,153	3,672	932	11·7
1870....	38,558,371	492,263	6,224	1,264	16·0
1880....	50,155,783	756,893	13,068	1,815	26·05
1890....	62,622,250	875,521	20,984	.....	33·5

In a private communication, Dr. Billings says, in connection with the record of 1890: "Permit me to call your attention to the fact that for the greater part of the United States the returns of deaths were very incomplete, there being no registration laws. The true death-rate was probably 18 per 1,000, and the death-rate from cancer and tumor per 100,000 living was undoubtedly greater than that above stated" (33·5).

If the attempt be made to compare the death-rate of large cities from this disease with that of the remaining parts of the country, remarkable results are attained. For in fifty large cities 39·94 died from cancer to the 100,000 living; while in the remainder of the country the death-rate from the same cause was 23·60 to the 100,000 living; showing the startling difference between the two of 16·34 to the 100,000 living.

On the other hand, if the percentage of deaths from cancer be compared with deaths from all known causes in both city and country districts, then especially a lowering of the death-rate from cancer in the city is seen, dependent on the large infant mortality from other causes.

If a comparison be made of urban with rural population at the periods of life when cancer is most prevalent, the excess then found is still on the side of the city. This difference is usually too wide to be accounted for entirely by the death-rate in the city of the non-resident afflicted who have sought relief by treatment there. It is, no doubt, true that much of the difference in the death-rates from cancer noted in city and rural populations is dependent on the deaths of the non-residents, who seek individual and hospital aid for the cure of their affliction. This fact is especially noticeable on the continent. In Berlin, from 1883 to 1888, the increase of non-residents in the hospitals of those afflicted with malignant disease was about forty-four per cent. From an official report of Breslau, 1889 to 1892, the following instructive extract is taken:

"The deaths from malignant tumors, which amounted to 14·9 per 1,000 of all deaths in 1877, but gradually increased to 25·4 per 1,000 in 1885, and 32·1 per 1,000 in 1891, shows clearly the effect upon the local death-rates caused by non-residents, whose proportion of the total deaths of this class was 8·3 per cent. in 1886, 9·8 per cent. in 1887, 11·8 in 1888, 14·4 in 1889, 13·0 in 1890, and 13·2 per cent. in 1891."

It is especially interesting to note the fact that in some portions of the United States cancer is apparently much more prevalent with the rural than the associated urban population; as, for instance, on the north Atlantic coast the rural district shows 31·42 and the urban 22·46 deaths from cancer in 1,000 deaths from all other causes. The middle Atlantic coast gives 20·25 rural to 19·93 of the city; northeastern hills, 33·23 rural to 17·53 of the city (Worcester and Hartford); south Atlantic coast gives 15·94 rural to 5·70 of the city (Charleston) deaths from cancer to 1,000 from all other causes.

The greater completeness of the mortality records of cities as compared with rural districts accounts for much of the difference in mortality rates from cancer, especially in Charleston, where the number of deaths from infantile diseases in the colored people is very pronounced.

Had these deaths been caused by cholera, or arisen from any other form of human affliction which threatened the safety of the people, or disturbed the avenues of trade, or imperiled the haunts of pleasure, then, indeed, the aggressive resources of the country would have opposed their presence and perpetuation. If the same number of persons were to die annually in these countries as the result of open acute infraction of common law, a knowledge of the fact would furnish texts for innumerable advocates of human redemption, and the basis of princely subscriptions in support of social reform. And, finally, if, despite these measures to establish reform, increased lawlessness were the only response to persistent effort for good, then tender consideration and mercy would be supplanted by vigorous prosecution and punishment.

As a further justification of the combat one need hardly stop now to estimate the importance of the pity of the stranger, the sorrow of the friend, or the anguish of the much-loved in this connection, since these emotions are a part of the life history of all who are endowed with healthy human sentiment.

The logical lines of this unthinking enemy's advance, in a comparative sense, differ in no essential respect from those long since established by the thoughtful study of opposing human agents in their assaults on each other. The vulnerable points are always assailed in human conflicts, and usually they are those of the freest communication.

The lymphatics, lymph nodes, and blood-vessels that are associated immediately with the disease afford easy exit from it of the malign influences that propagate and spread the infection. The malignant products of the original site find free access to contiguous lymph glands through the efferent lymph vessels of a diseased part. The onward march is halted there for a longer or shorter period, long enough at all events to plant the seeds of disease in the gland, which in turn sends on through similar channels to more distant glands its infecting products, and this repeated soon leads to wide infection, to constitutional involvement, and death. It is through these open and easily irrigable channels that malignant influences escape primarily and principally, as from a single spring, and with an ever-broadening and contaminating stream infect finally the entire sea of vitalizing fluid.

As proof of the part played by lymphatics in disease-spread I will call your attention to the results of the analysis of 100 non-hospital cases bearing on this point. In 69 of these cases enlargement of the associated lymphatic glands was present at the time of the primary operation. In 16 cases it is not stated whether they were present or not. In 15 cases only they were not detected by examination. This fact, however, is no proof that they were unaffected, since we frequently find on operation diseased glands infected by contiguous malignant growths that were too small to be appreciated before operation, and in some instances after removal they appeared but slightly enlarged, even though they were then pregnant with active malignant processes. In 94 cases of primary cancer of the tongue the glands were enlarged in eighty-three per cent. of the number. In 34 recurrent cases of this organ glandular enlargement was present in eighty-five per cent. In 118 cases of primary cancer of the breast the axillary glands were obviously enlarged in seventy-three per cent. of the number. In 42 recurrent cases of the breast the glands were enlarged in eighty-three per cent. of the total number. In 110 instances of non-ulcerated cancer of the breast the axillary glands were enlarged in eighty-three per cent. of the number, while in 50 ulcerated cases these glands were enlarged in ninety-six per cent. of the instances. Surely the inferences to be drawn from these examples bearing on the importance of early and thorough action are too obvious to require comment. One who omits the removal of lymphatic glands as a supplementary step to the excision of malignant disease should present a much better reason for the omission than that no appreciable enlargement of them was noticeable. The rapidity of the flow, the functional activity of the parts, the degree of the infectiousness of the fluid, and the susceptibility of the tissues to its influence, each in some part, or all combined, modify malignant disease dissemination. The blood-vessels, too, act as carriers of infection to every part of the body. Exactly at what period of the early history of a growth the lymphatics and blood-vessels begin the conveyance research has not yet determined.

A careful examination of the hundred cases discloses great paucity of statement regarding the time of the first appearance of enlarged glands, since in four cases only is this feature of development distinctly stated. In these cases two and five months were the extremes.

However, that the lymphatics and blood-vessels are the primary and principal agents of the dissemination of misfortune in malignant disease, and that their contributions to continued infection should be anticipated by an early, diligent, and wise interrogation of tissues possessed of special vulnerability, can not be controverted.

The points of least resistance relate to the immediate environments of the growth. The lymphatic network of vessels whose meshes embrace the tissues on all sides of the growth await with open mouths the opportunity to swallow the local infection. It is then carried by them principally in the direction of the lymph current to direct and more distant places, often poisoning the tissues as it goes along. It is important to remember, if only for conservative purposes, that the infection of tissues against the flow of the lymph current is of a limited degree and of sluggish attainment, while, *per contra*, active local and general infection attends the ebb tide of lymph flow in all parts of the body. Dense tissues with feeble blood supply are comparatively strong defensive barriers against the local assaults of this disease in its onward march of invasion. Loose tissue, abounding in cells and well irrigated with blood, offers an alluring point of attack for malignant invasion, and affords it a fertile field for triumph in the conflict with every natural and artificial reparative agency that opposes its course. The behavior of the resisting and opposing cellular forces in the advance line of conflict is conjectural in a large degree. But of two facts there can be no doubt:

1. That each peculiar cell opposes the advance of its antagonist with a cell vigor suggestive of cell duty and self-preservation. 2. That the healthy cell structures are pushed to the wall, as it were—literally overridden by the rapid advance of the innumerable venom-laden ones bred by the disease—is quite as clearly apparent to the uneducated eye of the layman as to the trained view of the physician.

The sacrifices of defeat, when one is opposed by an obdurate foe, should be sweetened always by the knowledge that one's best has been done. Complete general victory can never be attained in a contest like this, since the ills of the flesh are the heritage of man. But much more will be gained, for years of profit, comfort, and pleasure will come; then the sense of duty better performed will soothe the sorrows of defeat.

The costs of the struggle comprehend great forethought during two or more periods of the conflict—the primary period, the secondary period, etc. To the primary period belong the early detection of the growth; the prompt acknowledgment of its presence; a prompt diagnosis; a prompt and thorough removal of all malignant manifestations. Early detection of a local morbid growth is a matter that relates almost unreservedly to the patient; he should promptly acknowledge its presence to a physician, who should institute at once prompt measures for an accurate diagnosis, and a prompt and thorough removal of all local disease revelations. Unfortunately for the victim, this series of promptness is rarely evinced. The histories of cases of malignant disease are not bristling with statements that the patients themselves have contributed much at the outset to a knowledge of the presence of a morbid growth, even though they had long recognized the fact that "something wrong" had appeared. Indifference, trepidation, and procrastination are the order of the day, and their benumbing influence on resolution and action have wrecked too frequently the otherwise well-anchored hopes of patients and friends. The indifference is often the result of the belief that nothing of such a nature can "happen to me"—an expression suggestive of the fact that the person regards himself as one more favored by fortune than is his fellow man. Such a belief as this is a selfish faith that often robs one of the gain which follows an earnest, consistent human endeavor. Trepidation leads to incomplete performance of duty, and therefore to the adoption of incomplete methods of preventive procedure. Procrastination puts off until to-morrow the good and the bad alike; both are twin contributors to inaction and adversity.

Perhaps the patient attaches no importance to the growth, or fails to acknowledge its presence for dread of the truth or the folly of vanity. If the physician be told of the unwelcome visitor, he, too, from ignorance, inattention, or sentiment, may dismiss the matter lightly for a while, saying, "Come again in a month or so, and then we'll see." Yet, if he be wise and appreciative of the fact that all tumors are robbers, and, like their kind, may soon destroy the sources of their own enrichment, a prompt removal will quickly follow a prompt, accurate diagnosis.

As bearing on these items, let us examine for a moment the early histories of the hundred cases gleaned from other than hospital sources. It seems to me that such cases as these will illustrate the general trend of thought and action in dealing with malignant growths better than will cases taken from hospital records alone. The extent of the disease at the time of the first recorded professional observation will, I think, constitute one of the proper indices of the degree of promptness exercised in the case. The series of cases here quoted relate to the tongue and contiguous tissues, and are therefore more important than those of other regions of the body as bearing on the question of prompt action, because the exercise of the functions of these parts must have invited prompt recognition of the presence of a morbid process. Also, cases are selected from this series for the reason that the comparative increase of malignant disease is now greater here in the male than in other portions of the body. In the scheme of investigation, and under the heading "size, contiguous involvement, and situation of the tumor when first seen by the surgeon," appear the following startling examples descriptive of disease advancement: *First case,* "large prominence occupying great portion of the palate"; *second case,* "tumor size of bantam's egg"; *third case,* "large tumor extending into mouth across to right tonsil and causing fullness of the cheek"; *fourth case,* "extensive ulceration of tongue, floor of mouth, and alveolar process"; *fifth case,* "tumor size of orange depending from the soft palate"; *sixth case,* "tumor occupying posterior two fifths of the tongue." Now, when it is recalled that these six illustrations are found in the histories of eighteen consecutive cases taken indiscriminately from the series of one hundred, then, indeed, no stronger argument can be deduced to establish the fact that indifference, trepidation, or procrastination, one or all combined, contributed as much as did any other influence to the sad post-operative prognosis that characterized them. If a closer examination be made of the early history of cases bearing on the question of early recognition and prompt acknowledgment by the patients themselves, the following facts appear: First instance, "when first noticed, tumor size of a pea; thirteen years later, size of an orange." Second instance, when first seen, "size of a cherry"; when seen by the surgeon, "encroached on pillars of the fauces and dorsum of the tongue." Third instance, at first "size of a split pea"; later, "involved pillars of fauces and pharyngeal wall." These statements appear in the histories of twelve consecutive cases taken indiscriminately from the series. The following facts bearing on the time between the discovery of the growth and the period of primary operation are very instructive: *First case:* "Operated on eighteen years after the first appearance; then greater part of the superior maxilla was removed." *Second case:* "Operation five months after discovery; then portion of lower jaw, large portion of tongue, and floor of mouth excised." *Third case:* "Operation five years after first appearance; returned in three months." *Fourth case:* "Operation fifteen years after first appearance and one year after it was seen by physician." *Fifth case:* "Operation nine months after appearance; then tongue, hyoid bone, and epiglottis were removed." *Sixth case:* "Operation four years after discovery." These six examples of this phase of the subject appear in the histories of fifteen consecutive cases taken at random from the series of one hundred. In order that the hospital aspect of this part of the subject may be noted, I will call your attention to 119 primary cases of cancer of the breast taken from the Middlesex Hospital reports. In these cases it appears that an average of twenty-six months and a half had elapsed between the time the growth was first noticed and the period of admission to the hospital. Twenty-eight of these cases were admitted within six months; 15, six to twelve months; 22, twelve to eighteen months; 13, twenty-four to thirty months; 4, thirty to thirty-six months; 10, thirty-six to forty-two months; 1, forty-two to forty-eight months; 3, forty-eight to fifty-four months; 3, fifty-four to sixty months; 3, sixty to sixty-six months; 4, seventy-two to seventy-eight months; 2, ninety to ninety-six months; 6, over one hundred and two months. In eighteen cases of primary cancer of the lip, taken from the same source, an average period of twenty-four months and a half had elapsed before the patient claimed admission to the hospital. Surely no one could wish for better evidence than the preceding to establish the conclusion that an era of education of patients, and perhaps of the people, is demanded in the interest of a prolonged longevity and cure of those afflicted with malignant disease. If to these conclusions, begotten of recorded facts, be now added the results of similar cases born of the easy recollection of most of the hearers to-night, then, surely, conclusive conviction of the urgent necessity of a campaign of education is doubly emphasized. And especially is this true since it further appears that the recorded cases are the product of the last decade.

A thorough, wide removal should always be practiced, and apparently sound tissue logically situated should be freely sacrificed to insure success.

That this proposition is correct, no one who regards malignant disease as local at the outset will have the hardihood to deny. But, even if this be not his belief, he can not fail to recognize the greater value of a healthy reparative post-operative wound, the offspring of a wise and bold removal, when compared with one laden with malignant products, the issue of narrow and timid action. It is difficult indeed to draw reliable conclusions from the results of promiscuous operations, because different operators form diverse estimates of similar cases. For this purpose a clinical or hospital series of cases treated by one who is known to practice bold and thorough methods should be employed. While invidious distinctions will form no part of this lecture, still candor compels me to say that the post-operative records of those surgeons who have the greatest reputation for extensive and wide operative methods disclose the best results in so far as disease recurrence is concerned. Secondary growths and glandular enlargements should be sought for in logical situations and be removed in a similar manner as their antecedents. These growths and enlargements are the vicious progeny of the original malignity, and should meet the same fate as that of their perverse progenitors. Timidity and incompetent examination foster incomplete removal; incomplete removal stimulates the activity of the growth and often too a distrust of the profession that causes the enrichment of quacks. Success at the outset means almost everything. Therefore the patient must be thoughtful and frank; the physician prompt and certain; the surgeon fearless and thorough, and all should then be vigilant, vigilant, vigilant.

The costs of the struggle of the secondary period contemplate the exercise of eternal vigilance, great patience, unselfish devotion, unfaltering determination, and often Christian fortitude on the part of all concerned. The unfailing employment of intelligent, patient, and periodical scrutiny of the suspected parts by the physician constitutes the vigilance essential for the detection of the earliest reappearance of malignant manifestations. The unselfish devotion of friends and attendants; the unfaltering determination of the surgeon to perform and of the patient to submit promptly to radical measures, require not infrequently the exercise of a degree of fortitude depicted by Milton when he wrote—

> "Nor bate a jot of heart or hope;
> But will still bear up,
> And steer right onward."

And, too, one should not lose sight of the fact that a "faint heart" has the same relation to success with malignant disease that it has with the "fair lady."

The exercise of proper vigilance on the part of the sentinels who are engaged in every anticipated conflict is directed to the common points of renewed attack, and also to the period of expectancy and the aspect of the foe. The common points of renewed attack of malignant disease are at the seat of the primary operation, in the nearest associated lymph glands, and not infrequently the distant indirectly associated parts of the body. The seat of the primary operation is a common point of renewed attack, and the early and wide removal of malignant growths contributes more than any other one element to the failure of reappearance there. If the growth is removed early, it is then small, the infiltration is limited, and the lymphatics are less involved, and too, the resulting deformity is reduced to a minimum; each of which is an important desideratum. In 20 of the series of 100 cases of cancer of the mouth already quoted, the histories of recurrences are quite complete. Of this number 2 recurred at the seat of operation; 7 in glands contiguous to the seat of the primary disease; 8 reappeared simultaneously at the seat of the operation and in the glands; in 3 instances the point of reappearance is not stated. In another series of 14 cases of recurrent cancer following primary disease of the tongue, 5 reappeared in the glands; 8 in the stump of the tongue, and 1 in both tissues simultaneously. Thus we have 34 recurrent cases, taken at large, in which the earliest physical manifestations of renewed malignancy should have been promptly detected by careful, continued, and logical scrutiny.

The period of expectancy is of very uncertain duration. In the 20 cases before alluded to, 5 reappeared in three months, 2 in two months, 1 in one, four, five, six, nine, sixteen, and twenty months respectively. One is reported to have returned "quickly," another in seven years. This, the last case, attacked the stomach and can not therefore be regarded as a recurrent one in the common usage of the term. In 3 cases the period of recurrence is not stated. One of the cases can not be called recurrent, since the diseased glands present at the primary operation had not been removed, and soon thereafter became the seat of active malignant growth. The period of recurrence is modified in length by the situation, size, nature, and activity of the growth, etc., together with the promptness and thoroughness of removal. Inasmuch as a definite period of expectancy can not be wisely fixed in any case of malignant disease, and therefore as the safety of the patient is secured only by continuous vigil, I will not needlessly encumber the lecture with records of periods easily obtained, and thus, perhaps, disarm wise discretion by the utterance of unreliable dogmatic expressions.

The face of the foe admits of no disguise, for even though it be masked by innocence, its past record of malevolence disarms the possibility of the escape of detection, even if only ordinary prudence be exercised.

In 1889, while considering this subject in a paper before the State association, I made the following assertion: The surgeon's watchword ought to be: *Cut early, cut often, cut wide, and remove contiguous lymphatic structures when practicable, whether diseased or not.* This principle is much older than the expression. Later experience has in no way lessened the force of this statement in my judgment, but has, on the contrary, served to strengthen my belief in the wisdom of the course.

In nearing the termination of this lecture I desire to submit to your consideration the following conclusions:

1. That the death-rate of malignant disease is constantly increasing in all civilized countries.
2. That the death-rate is larger in cities, irrespective of the presence of the transient affected there, than in the country.
3. That in limited portions of the country, and in some cities, the death-rate from malignant disease is strangely and disproportionately large.
4. That this increase of malignant disease demands urgent consideration and prompt logical methods of combat on the part of *all* concerned.
5. That better post-operative prognosis can be attained by proper education of the afflicted and prompter action of the profession.
6. That when the considerations of health and strength shall excite the same degree of forethought and vigilance as the attainment of wealth and power does, then post-operative prognosis will be much improved.

But a few words more in the line of thought of the last conclusion and I am through. The strife for wealth and power on this little planet of ours develops keen and sagacious discernment, vigilant and tireless scrutiny, and sound, aggressive self-reliance, and the people are made better and their belongings more valuable as the result of a proper exercise of these endowments. Now, if it were possible that health be allied with wealth and strength with power in this battle of attainment, then indeed would Pope's sentiment—

> "Reason's whole pleasure, all the joys of sense
> Lie in three words—health, peace, and competence"—

be realized.

No. 1.—England.

YEAR.	Population.	Total deaths.	Deaths from cancer.	Per cent. of total deaths.	Death-rate from cancer to the 1,000 living.
1865........	21,145,151	490,909	7,875	1·60	0·37
1866........	21,409,684	500,689	8,246	1·65	0·38
1867........	21,677,525	471,073	8,487	1·80	0·39
1868........	21,948,713	480,622	8,834	1·84	0·40
1869.	22,223,299	494,828	9,266	1·87	0·41
1870	22,501,316	515,329	9,530	1·85	0·42
1871........	22,788,504	514,879	9,650	1·87	0·42
1872........	23,096,495	492,265	9,945	2·02	0·43
1873........	23,408,556	492,520	10,395	2·11	0·44
1874........	23,724,834	526,632	10,941	2·08	0·46
1875........	24,045,385	546,453	11,336	2·07	0·47
1876........	24,370,267	510,315	11,521	2·26	0·47
1877........	24,699,539	500,496	12,061	2·41	0·49
1878........	25,033,259	539,872	12,594	2·33	0·50
1879........	25,371,489	526,255	12,722	2·42	0·50
1880........	25,714,288	528,624	13,210	2·50	0·51
1881........	26,061,736	491,935	13,542	2·75	0·52
1882...	26,413,861	516,654	14,057	2·72	0·53
1883........	26,770,744	522,997	14,614	2·79	0·55
1884........	27,132,449	530,828	15,198	2·86	0·56
1885.......	27,499,041	522,750	15,560	2·98	0·57
1886........	27,870,586	537,276	16,243	3·02	0·58
1887	28,247,151	530,758	17,113	3·22	0·61
1888........	28,628,804	510,971	17,506	3·43	0·61
1889........	29,015,613	518,353	18,654	3·60	0·64

No. 2.—London.

1869........	3,176,308	77,933	1,584	2·03	0·50
1870........	3,221,394	77,634	1,677	2·16	0·52
1871........	3,267,251	80,430	1,611	2·00	0·49
1872........	3,319,736	71,355	1,712	2·40	0·52
1873........	3,373,065	75,459	1,793	2·38	0·53
1874........	3,427,250	76,813	1,929	2·51	0·56
1875........	3,482,306	81,964	1,951	2·38	0·56
1876........	3,538,246	77,671	1,973	2·54	0·56
1877........	3,595,085	77,449	1,910	2·47	0·53
1878........	3,652,837	84,188	2,086	2·48	0·57
1879........	3,711,517	83,964	2,165	2·58	0·58
1880........	3,771,139	81,957	2,229	2·72	0·59
1881........	3,824,980	81,431	2,358	2·90	0·62
1882........	3,862,956	83,015	2,442	2·94	0·63
1883........	3,901,309	81,108	2,547	3·14	0·65
1884........	3,940,042	82,448	2,623	3·18	0·67
1885........	3,979,160	80,978	2,624	3·24	0·66
1886........	4,018,666	82,691	2,688	3·25	0·67
1887........	4,058,565	82,448	2,874	3·49	0·71
1888........	4,098,860	79,244	2,856	3·60	0·70
1889........	4,139,555	76,162	2,982	3·92	0·72
1890........	4,180,654	89,268	3,258	3·65	0·78
1891........	4,222,157	89,122	3,277	3·68	0·78
1892........	4,264,076	86,833	3,166	3·65	0·74
1893........	4,306,411	91,536	3,412	3·73	0·79

No. 3.—Scotland.

DISTRICT OR TOWN.	Estimated population (1888).	Total deaths, 1888.	Cancer deaths, 1888.	Per cent. of cancer on total deaths.	Death-rate from cancer to the 1,000 living.
Principal towns	1,588,350	30,505	1,005	3·31	0·63
Large towns.......	451,982	8,400	267	3·20	0·60
Small towns.......	853,161	14,284	500	3·53	0·59
Mainland, rural	1,011,419	15,927	610	3·90	0·61
Insular, rural	129,244	2,058	68	3·65	0·58
Glasgow	526,088	11,681	287	2·47	0·55
Edinburgh.........	262,733	4,738	281	5·94	1·07
Dundee...........	160,619	2,957	101	3·42	0·63
Aberdeen	119,334	2,179	80	3·68	0·67
Greenock..	77,015	1,230	42	3·42	0·55
Leith.............	74,320	1,175	44	3·76	0·59
Paisley	61,687	1,593	27	1·70	0·44
Perth.............	32,478	588	20	3·41	0·62
Kilmarnock........	27,246	566	27	4·78	0·99
ENGLAND AND WALES	29,405,054	559,684	20,353	3·63	0·69
London	4,264,076	86,833	3,243	3·73	0·76
England and Wales, excluding London.	25,140,978	472,851	17,110	3·62	0·67

These figures for England and London are for the year 1892.

No. 4.—Italy, 1889.

PROVINCE OR DISTRICT.	Chief city, with population.	Population of province.	Total deaths.	Cancer deaths.	Per cent. of total deaths.	Death-rate from cancer to the 1,000 living.
Liguria . . .	Genoa (210,652). .	940,533	23,371	513	2·23	0·55
Piemonte. .	Turin (312,422) . .	3,216,255	77,281	1,167	1·62	0 37
Lombardia.	Milan (418,972) . .	3,881,809	95,858	2,184	2·29	0·56
Veneto. . . .	Venice (152,416) .	2,966,051	63,864	1,303	2·06	0·44
Lazio	Rome (415,498) . .	969,602	26,777	471	1·78	0·49
Campania .	Naples (517,067) .	3,028,927	78,728	960	1·24	0·32
Toscana. . .	Florence (185,057)	2,266,933	56,167	1,667	3·00	0·74
Emilia. . . .	Bologna (138,339).	2,245,358	58,705	1,492	2·57	0·66
Marche . . .	. . . .	959,010	24,904	560	2·28	0·58
Umbria . . .	. . . .	590,865	15,385	273	1·79	0·46
Abruzzi e Molise . .	. . . .	1,355,582	37,851	385	1·06	0·28
Puglie	. . . .	1,740,470	49,341	495	1·01	0·28
Basilicata .	. . . .	537,129	14,985	122	0·84	0·23
Calabria. . .	. . . .	1,303,813	34,666	310	0·95	0 24
Sicilia . .	Messina (139,744). Palermo (266,872)	3,245,742	90,446	898	1·02	0·28
Sardegna . .	. . . .	721,575	19,739	123	0·72	0·17

*No. 5.—Berlin.**

YEAR.	Population.	Total deaths.	Deaths from cancer.	Per cent. of total deaths.	Death-rate from cancer to the 1,000 living.
1874.	916,449	27,286			
1875.	948,534	31,225			
1876.	981,118	29,185			
1877.	1,010,946	29,988	631	2·10	0·62
1878.	1,039,447	30,629			
1879.	1,071,886	29,545			
1880.	1,106,339	32,823	736	2·24	0·67
1881.	1,140,001	31,055	584	1·88	0·51
1882.	1,174,216	30,465	639	2·10	0·54
1883.	1,209,159	35,056	668	1·91	0·55
1884.	1,250,895	32,932	795	2·41	0·64
1885.	1,291,359	31,483	724	2·30	0·56
1886.	1,339,108	34,293			
1887.	1,389,841	30,333			
1888.	1,443,742	29,294	943	3·22	0·65
1889.	1,496,344	34,459			
1890.	1,553,665	33,393	1,032	3·09	0·66
1891.	1,601,327	33,392	1,091	3·27	0·68
1892.	1,637,283	32,696	1,138	3·48	0·69

Vienna.†

1874.	649,931	19,926	649	3·26	1·00
1875.	658,763	20.418	702	3·44	1·07
1876.	667,715	21,556	699	3·24	1·05
1877.	676,789	20,935	704	3·36	1·04
1878.	685,986	21,643	720	3·33	1·05
1879.	695,308	21,062	770	3·66	1·11
1880.	704,756	20,453	729	3·56	1·03
1881.	715,257	21,549	804	3·73	1·12
1882.	725,935	21,595	799	3·70	1·10
1883.	736,773	21,194	871	4·11	1·18
1884	747,772	20,353	910	4·47	1·22
1885.	758,935	21,976	916	4·17	1·21
1886.	770,265	20,869	918	4·40	1·19
1887.	781,764	20,549	911	4·43	1·17
1888.	793,434	20,349	942	4·63	1·19
1889.	805,278	20,106	1,060	5·25	1·32
1890.	817,299	20,324	1,009	4·96	1·23

No. 6.—Paris.‡

YEAR.	Population.	Total deaths.	Deaths from cancer.	Per cent. of total deaths.	Death-rate from cancer to the 1,000 living.
1886.	2,260,945	57,092			
1887.	2,292,787	54,847	2,350	4·28	1·02
1888.	2,325,078	53,303	2,423	4·55	1·04
1889.	2,357,824	56,059	2,461	4·39	1·04
1890.	2,391,031	56,660	2,445	4·32	1·02
1891.	2,424,705	54,443	2,525	4·64	1·04
1892.	2,458,853	57,137	2,459	4·30	1·00
1893.	2,493,483	55,469	2,557	4·61	1·03

Munich.#

1883.	*a*230,000	7,676	225	2·93	0·98
1884.	240,000	7,369	294	3·99	1·22
1885.	*a*251,000	7,539	276	3·66	1·10
1886.	262,000	7,847	295	3·76	1·13
1887.	*a*268,000	8,057	338	4·20	1·26
1888.	275,000	8,236	315	3·82	1·15
1889.	281,000	8,721	395	4·53	1·41
1890.	349,024	8,953	307	3·43	0·88
1891.	357,000	9,854	347	3·52	0·97
1892.	373,000	9,717	387	3·98	1·04

Hamburg (*State*). ‖

1884.	500,273	12,577	488	3·88	0·98
1885.	513,224	12,983	475	3·66	0·93
1886.	525,150	15,247	519	3·40	0·99
1887.	538,750	14,350	522	3·64	0·97
1888.	559,290	13,735	522	3·80	0·93
1889.	584,080	13,584	513	3·78	0·88

No. 7.—New York.

1874.	1,030,607	28,727	416	1·45	0·40
1875	1,044,396	30,709	423	1·38	0·40
1876.	1,075,532	29,152	459	1·57	0·43
1877.	1,107,597	26,203	495	1·89	0·45
1878.	1,140,617	27,008	570	2·11	0·50
1879.	1,174,621	28,342	572	2·02	0·49
1880.	1,209,709	31,937	659	2·06	0·54
1881.	1,252,017	38,624	706	1·83	0·56
1882.	1,295,805	37,924	732	1·93	0·56
1883.	1,341,124	34,011	678	1·99	0·51
1884.	1,388,028	35,034	731	2·09	0·53
1885.	1,436,572	35,682	754	2·11	0·52
1886.	1,486,814	37,351	779	2·09	0·52
1887.	1,538,814	38,933	832	2·14	0·54
1888.	1,592,632	40,175	870	2·17	0·55
1889	1,648,332	39,679	848	2·14	0·51
1890.	1,705,980	40,103	954	2·38	0·56
1891.	1,765,645	43,659	902	2·07	0·51
1892.	1,827,396	44,329	996	2·25	0·55
1893.	1,891,306	44,486	993	2·23	0·53

Philadelphia.

1874.	775,000	15,238	307	2·01	0·40
1875.	800,000	17,805	317	1·78	0·40
1876.	825,594	18,892	373	1·97	0·45
1877.	850,856	16,004	327	2·04	0·38
1878.	876,118	15,743	380	2·41	0·43
1879.	901,380	15,473	364	2·35	0·40
1880.	846,980	17,711	368	2·08	0·43
1881.	868,000	19,515	413	2·12	0·48
1882.	886,539	20,059	429	2·14	0·48
1883.	907,041	20,076	* 783	3·90	0·86
1884.	927,995	19,999	476	2·38	0·51
1885.	949,432	21,392	487	2·28	0·51
1886.	971,363	20,005	461	2·30	0·47

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* Figures taken from official annual reports, in which there is no separate heading for cancer. The deaths in the cancer column, as given above, are "Krebs und Geschwülste"—that is, "cancer and tumors."

† Figures taken from official annual reports, in which cancer is given by itself.

‡ Populations for 1886 and 1891 are the census figures. Other years have been calculated by the common formula for geometrical annual increase, as the Paris officials do not make any estimates for intercensal years, but use the figures of one census until they have another.

Populations marked *a* were inserted by the compiler; the others are all from official reports, the figures for 1890 being census figures apparently, and the others mere guesswork.

‖ Figures taken from the "Statistisches Handbuch für den Hamburgischen Staat, 1891."

Of every 100,000 living died, on the average, from cancer, 1879–'83, 88·7; 1884–'89, 94·4. *Op. cit.*, p. 57.

Philadelphia.—(Continued.)

YEAR.	Population.	Total deaths.	Deaths from cancer.	Per cent. of total deaths.	Death-rate from cancer to the 1,000 living.
1887	993,801	21,719	500	2·30	0·50
1888	1,016,758	20,372	448	2·20	0·44
1889	1,040,245	20,536	531	2·59	0·51
1890	1,046,964	21,732	* 215	0·99	0·21
1891	1,069,264	23,367	572	2·45	0·53
1892	1,092,168	24,305	569	2·34	0·52
1893	1,115,562	23,655	614	2·60	0·55

No. 8.—Population, Deaths, and Death-rates from Cancer for Twenty Years. Boston, Mass.

1874	313,745	7,812	140	1·79	0·45
1875	360,122	9,060	156	1·72	0·43
1876	352,842	8,253	164	1·99	0·46
1877	363,000	7,316	193	2·64	0·53
1878	363,000	7,636	196	2·57	0·54
1879	363,000	7,398	195	2·64	0·54
1880	362,839	8,531	214	2·51	0·59
1881	397,628	9,016	241	2·67	0·61
1882	410,376	8,995	253	2·81	0·62
1883	427,940	9,740	293	3·01	0·68
1884	427,940	9,622	282	2·93	0·66
1885	400,000	9,618	274	2·85	0·68
1886	400,000	9,268	299	3·23	0·75
1887	400,000	10,073	324	3·22	0·81
1888	415,000	10,197	279	2·74	0·67
1889	420,000	10,259	306	2·98	0·73
1890	448,477	10,181	326	3·20	0·73
1891	459,062	10,571	317	3·00	0·69
1892	469,647	11,236	328	2·92	0·70
1893	487,397	11,710	310	2·65	0·64

No. 9.—Baltimore.†

1874	267,354	7,401	83	1·12	0·31
1875	355,000	7,317	127	1·74	0·36
1876	355,000	7,382	122	1·65	0·34
1877	360,000	7,936	141	1·78	0·39
1878	360,000	6,733	177	2·63	0·49
1879	375,000	7,618	151	1·98	0·40
1880	375,000	8,043	155	1·93	0·41
1881	393,000	8,816	175	1·98	0·45
1882	408,520	8,823	163	1·85	0·40
1883	408,520	9,380	163	1·74	0·40
1884	408,520	8,293	182	2·19	0·45
1885	417,220	8,153	185	2·27	0·44
1886	417,220	8,339	205	2·46	0·49
1887	437,155	8,372	220	2·63	0·50
1888	437,155	8,936	226	2·53	0·52
1889	437,155	8,703	226	2·60	0·52
1890	455,427	10,198	276	2·71	0·61
1891	455,427	10,073	267	2·65	0·59
1892	455,427	10,582	232	2·19	0·51
1893	455,427	9,554	249	2·61	0·55

No. 10.—New Orleans.†

YEAR.	Population.	Total deaths.	Deaths from cancer.	Per cent. of total deaths.	Death-rate from cancer to the 1,000 living.
1874	210,000	6,798	88	1·29	0·42
1875	210,000	6,117	89	1·46	0·42
1876	210,000	6,257	91	1·45	0·43
1877	210,000	6,708	113	1·68	0·54
1878	210,000	10,318	115	1·11	0·55
1879	210,000	5,122	105	2·05	0·50
1880	216,090	5,623	129	2·29	0·60
1881	218,879	6,406	127	1·98	0·58
1882	221,704	5,922	143	2·41	0·65
1883	224,556	7,523	122	1·62	0·54
1884	227,465	7,150	151	2·11	0·66
1885	234,000	6,670	135	2·02	0·58
1886	238,000	6,291	157	2·50	0·66
1887	242,750	6,075	143	2·35	0·60
1888	248,000	6,301	136	2·16	0·55
1889	254,000	6,075	139	2·29	0·55
1890	254,000	7,238	187	2·58	0·74
1891	254,000	6,856	152	2·22	0·60
1892	254,000	7,499	160	2·13	0·63
1893	254,000	7,556	167	2·21	0·66

No. 11.—San Francisco.

1874	230,132	3,710	63	1·70	0·27
1875	272,345	4,189	88	2·10	0·32
1876	300,000	5,555	97	1·75	0·32
1877	300,000	4,977	129	2·59	0·43
1878	305,000	4,493	117	2·60	0·38
1879	234,520	4,340	122	2·81	0·52
1880	234,520	4,287	109	2·54	0·46
1881	234,520	5,008	148	2·96	0·63
1882	250,000	4,988	152	3·05	0·61
1883	270,000	5,000	164	3·28	0·61
1884	270,000	5,288	138	2·61	0·51
1885	280,000	5,322	180	3·38	0·64
1886	300,000	5,359	184	3·43	0·61
1887	330,000	6,036	190	3·15	0·58
1888	330,000	5,729	195	3·40	0·59
1889	300,000	6,378	216	3·39	0·72
1890	330,000	6,650	243	3·65	0·74
1891	330,000	6,911	230	3·33	0·70
1892	330,000	6,061	243	4·01	0·74
1893	330,000	6,060	210	3·47	0·64

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Original Communications.

THE TREATMENT OF PNEUMONIA,

WITH SPECIAL REFERENCE TO THE VALUE OF HEAT.

By CHARLES WILSON INGRAHAM, M. D.,

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CALLED to treat an adult case of acute lobar pneumonia in its first stage, or stage of congestion, what means can we employ which shall have the effect to minimize danger and magnify the chances of recovery? What remedies administered internally; what substances or apparatus applied externally; what inhalations—gas, vapor, sprays, or other means whatsoever—are to-day at the command of the general practitioner which will have the effect to modify symptoms, to reduce, avoid, or control the dangerous features of the disease, and to facilitate convalescence?

Uncomplicated pneumonia is in a large percentage of cases a self-limited disease, and any treatment or method administered with a view to shorten its duration is fruitless and may even be harmful. After consolidation has occurred it is as impossible to abort pneumonia as to abort typhoid fever after the formation of Peyer's patches; and instead of loading down the system of the patient with depressing drugs, and depleting his vitality by drastic purgatives in vain efforts to accomplish this impossible feat, we should concentrate our efforts upon a definite line of treatment that has for its motive the achievement of three fundamental principles—namely, to support nutrition, and by so doing sustain strength, vitality, and resistance; to modify painful or distressing symptoms, and by so doing encourage mental and muscular rest; to relieve, uphold, and fortify the cardiac functions.

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* Note by health officer of Philadelphia: "Very extraordinary mortality, not explained. In 1890 the influenza epidemic may have carried off many already weakened by disease, which would account for the decreased mortality"—J. V. R. Turner, City Registrar Clerk.

† Figures furnished, in response to inquiry, by the health department of each city.

These three essential points kept constantly in mind and given careful, intelligent, and systematic attention, combat a multitude of more or less serious conditions and complications, which stand ever in readiness to break in upon the field and disorganize and confuse the whole outlook.

In order to more clearly present my subject and render a more intelligent conception of my theory, it will be necessary to draw a descriptive picture of a typical case of acute lobar pneumonia occurring in an adult, and color the same with the physiological and pathological demonstrations ordinarily associated with the disease.

Many practitioners are enabled to recognize a case of pneumonia at a first glance, because of certain visible changes or conditions. The dark, flushed hue of the face and temples; the general expression of anxiety; the panting, rapid breathing, which calls into play the extraordinary muscles of respiration, the sterno-mastoid muscles standing out prominently; the harsh cough—all contribute to the diagnosis of acute pneumonia, and the physician knows what he is going to hear before he puts his ear to the chest. These symptoms are external indications of the internal condition.

Put an animal under a bell glass and as the air becomes exhausted we see the typical symptoms present in pneumonia—the blueness of the skin, the rapid breathing bringing into play all the muscles of respiration, the anxious expression; in fact, everything but the cough.

The symptoms in either case depend upon a lack of oxygen and an excess of carbonic acid, and our most skillful efforts in the treatment of pneumonia should be directed to increase the amount of oxygen in the system, to eliminate the excess of carbonic acid, and to bring them as near as possible to their proportions in health.

With the onset of pneumonia, one or more lobes of the affected lung become consolidated and—like a depositor's money in an insolvent bank—the blood circulating through the affected portion of the lung at the inception of the disease becomes stagnated and coagulated, thus depriving the system of the quantity of blood that the pulmonary vessels of the involved area ordinarily contain. We know that more than double the same amount of blood could be drawn from the system—following the onset of the disease—with little or no constitutional effects; without causing any depressing results or inducing any functional disturbance of any one of the various organs of the body. Indeed, the results might be favorable following such an operation. Therefore it is not the loss of blood that causes the intense depression of the vital forces following the onset of acute lobar pneumonia.

The lungs are composed of five lobes. Will the consolidation of one lobe and consequent total suspension of its functions so disorganize the equilibrium of the respiratory mechanism or so diminish the breathing surface of the pulmonary organ as to endanger the system from lack of oxygen, from inability to eliminate the poisonous products ordinarily thrown off by the lungs, or from any other pathological condition consequent upon impairment of the respiratory functions?

It is a very common occurrence to see a person afflicted with pulmonary phthisis — the extent of destruction of whose lungs more than aggregates one or even two complete lobes—in whom there are not present at any period of his disease any of the respiratory or cardiac symptoms present in acute pneumonia. Furthermore, such an individual might undergo a severe pulmonary hæmorrhage from the effects of which he would lose a large quantity of blood, much more than could be imprisoned in the vessels of a consolidated lobe, and yet experience none of the phenomena associated with pneumonia.

It is thus easy to prove by analogy, by the comparison of two pathological conditions which sufficiently resemble one another to allow of the comparison, that it is not the restriction of pulmonary surface or loss of blood that occasions the typical symptoms of pneumonia, and that they contribute to the condition as a whole only to a limited extent.

Neither is the condition resultant of the initial chill, the pleurisy, the temperature, the systemic shock, nor any other symptoms typically associated with the inception of the disease.

We thus find, upon dissection of the visible symptoms and conditions, examined singly and collectively, no cause that would give rise to the effect.

Without knowing the actual working capacity of the veins, arteries, and capillaries of a healthy pulmonary lobe, let us assume, for example, that such a lobe has constantly under motion in its vessels one fortieth of the whole quantity of blood in the body.

In order to maintain the correct proportion of oxygen and carbonic acid in the tissues and fluids of the body, this lobe must oxidize and purify one fifth of the whole amount of blood in the system.

What effect upon the system, local and constitutional, will be the result of the consolidation of one lobe?

The superior and inferior vena cava steadily pour their flow into the right auricle, and the right ventricle is obliged to pump the full amount brought to it, through the diminished area of the pulmonary circulation.

In order to compensate for the loss of one fifth of the oxidizing surface and blood capacity, the veins, arteries, and capillaries of the uninvolved area are worked to their utmost capacity, and the blood tension in these vessels must be increased twenty per cent. above the normal, while the tension in the blood-vessels of the systemic circulation is nearly or quite normal.

Take, as an example, a system of rubber pipes supplying water to a large factory. Suppose that, by the maintenance of a pressure of fifty pounds to the square inch, a condition of perfect equilibrium is maintained—that is, the entire supply is exactly disposed of—the supply is precisely equal to the demand. An accident occurs to one portion of the piping representing one fifth of the capacity of the entire system, and the water is shut off from this damaged part, but it is impossible to diminish the amount of water supply or pressure. Therefore the remaining four fifths of the tubing must have its capacity increased in proportion to the extent of the damaged area. As water can not be compressed, the tubing must of necessity expand, and the pressure thrown back upon the boiler is in exact proportion to the amount of force required to sustain this expansion. More fuel is required to generate the required amount of force, and if the amount of force required is above the ordinary capacity of the boiler (as a diseased heart from organic or systemic cause), serious results may be expected to occur. It is principally a question of fuel; but the best of boilers can not support a tension twenty per cent. above their capacity for any lengthy period.

The situation would be rendered more dangerous if the piping from neglect or abuse has become hardened and can not yield or expand to accommodate the additional water pressure. Such a condition would be analogous to that found in the blood-vessels in the chronic inebriate, in the gouty, in the rheumatic; and in such cases the condition is more critical because the heart is usually below the normal standard.

This example, which gives a perfect picture of the condition of the heart and the circulation in monolobular pneumonia, shows us exactly what we must accomplish if we expect our treatment to increase the chances of recovery.

We must dilate, relax, or enlarge the blood-vessels of the healthy portion of the pulmonary organ, so that it will accommodate the extra twenty per cent. of blood which is required to circulate regularly through the lungs in order to maintain the equilibrium of the circulation, so as to supply the system with a sufficient amount of oxygen, and to relieve the system of the poisonous products of respiration.

But how are we to accomplish this and reduce the tension in the pulmonary vessels to a sufficient degree to appreciably relieve the heart?

The old-time practice of bleeding the patient accomplished this to a certain extent. By drawing blood from one of the extremities, the amount drawn was immediately replaced from the portion of the body where there was the greatest tension. It served to equalize the circulation and quiet the arterial excitement, and in plethoric patients it was attended with success to a certain extent; but, as only a small percentage of pneumonia patients were plethoric, the universal practice of bleeding did, on the average, more harm than good. The number of deaths caused by bleeding, without doubt, exceeded the number of lives saved. The result of bleeding has the undesirable effect of greatly diminishing the number of red blood-corpuscles, which should be increased rather than diminished.

This blood represented a certain amount of vitality and force, and was needed by the patient to carry him through the systemic exhaustion of the disease, and by depriving him of it, even though it for a short time effected a very desirable physiological result, his chances of recovery were diminished in proportion to the amount of blood withdrawn.

Veratrum viride lowers the blood pressure by its action upon the heart muscle and by its depression of the vasomotor center, and in the early stage of pneumonia will bring about the same physiological results that follow the operation of bleeding. "It bleeds the patient into his own blood-vessels." But, while it accomplishes temporarily certain desirable effects, its use is not to be thought of for a moment. It is worse than valueless.

There is but one remaining agent that will produce the desired effect, and that is heat, the king of all remedies as regards results, immediate and permanent. It is a powerful stimulant and antispasmodic, and the whole effect of heat properly applied reaches a higher degree of perfection in the treatment of acute pneumonia than is possible in any other pathological condition.

It relieves pleuritic pain.

It induces copious but not exhaustive perspiration.

It is a reliable antipyretic if used in a way to obtain its full physiological effects at an early stage of the disease.

It controls the disease and prevents its further spread.

It is a powerful and reliable cardiac stimulant, a fact long recognized by the laity as well as the profession.

Its powerful antispasmodic effects have long been recognized in the treatment of dysmenorrhœa, spasmodic croup, gastralgia, neuralgia, rheumatism; and its power of vascular relaxation is demonstrated in sprains, bruises, inflammatory rheumatism, etc.

In my experience heat, moist or dry, has proved most reliable and valuable, and, if I were obliged to choose between heat and all other remedies, internal or external, I should choose the former.

The great and only shadow which has enveloped this truly grand remedy has been the lack of an apparatus by the aid of which it can be applied to bring forth its full therapeutic effects. To properly apply heat in the treatment of pneumonia, a high temperature should be continuously and uninterruptedly maintained. The old-time poultice is possessed of so many disadvantages as to more than neutralize its good effects. Poultices are, as a rule, applied over the involved area with what expected ultimate effect I know not, but presumably to hasten resolution of the hepatized tissue and relieve pain. While it is possible that they may possess this power to a limited degree, I can not believe that the benefit actually obtained warrants the inconvenience and possible dangers, even when the process of poulticing is in the hands of careful and experienced nurses, as it is almost an impossibility to keep the body from being chilled more or less when the changes are made. The more experience I had with poultices in the treatment of pneumonia, the more convinced I became that the patient would recover fully as soon and with as much certainty when poultices were not used. The more I saw of the effect of heat as a therapeutical agent, the more I became impressed with the idea that if this agent could be utilized in a manner to obtain a maximum amount of its advantages, with a minimum amount of dangers and inconveniences attending its use, it would be one of the most valuable and reliable remedies at our command in the treatment of pneumonia as well as a multitude of other affections. I obtained the services of a skilled engineer and mechanic, and, pointing out to him the inadequate means at the command of physicians and nurses to utilize heat, requested him to invent an apparatus which would overcome the obstacles with which we had to contend. He conceived the idea of utilizing known scientific principles and, with occasional advice from me, finally completed the construction of an apparatus. In two years' experience, during which time it has seen much service, the faults in its general workings have been corrected and improvements added so that it now approaches a degree of perfection not dreamed of when its structure was begun.

The apparatus on the whole is exceedingly simple and consists of an adjustable flannel jacket which covers the thorax anteriorly and posteriorly. To this jacket is attached rubber tubing, coiled and arranged about an inch apart, and attached to such an extent of the jacket as to completely envelop the sides and front of the thorax. The rubber tubing is skillfully mounted in such a manner as to prevent kinking at the curves, and the patient may lie upon it with perfect ease and comfort, and not interfere in the least with the working of the apparatus.

After the complete jacket is adjusted to the patient, a feed tube is attached to a small reservoir of hot water, the heat of which is maintained by a kerosene, alcohol, or gas burner. The reservoir is placed several feet higher than the patient, and the hot water circulates through the tubing and is finally conducted by a discharge tube to a vessel at the foot of the bed. A thermometer is placed in the supply tank and the heat kept at an exact temperature. As the water flows through the tubing it diffuses a gentle penetrating heat, and in its passage through the entire jacket only a slight cooling of the water takes place, for the thermometer will indicate only a few degrees lower at the discharge tube.

When the jacket is first applied the water should be allowed to flow under a full head for a few moments, following which it may be so checked as only to drop into the discharge tank. The flow of the water is controlled by stopcocks at the reservoir and at the end of the discharge tube.

The rubber tubing is so arranged that it can be removed from the jacket in order to facilitate the cleansing and disinfecting of the apparatus.

After treating a considerable number of cases of pneumonia as well as a variety of less dangerous acute diseases of the lungs, I have yet to see the patient who did not experience the most marked benefit from the effect of the apparatus.

Respiration became deeper, less laborious, and markedly reduced in rapidity. This effect is explained by the fact that a high degree of heat so generally applied as to act upon the entire surface of the respiratory organ, enlarges the caliber of the blood-vessels of the uninvolved portion, thus allowing of the reception at a normal tension of the blood which would in the healthy state go to the area now consolidated. This has the effect of relieving arterial tension, of exposing a greater surface or area of blood to the air-cells (by the increase in the capacity or caliber of the veins, arteries, and capillaries), thereby relieving the heart action and encouraging a normal interchange of oxygen and carbonic acid.

In a period of six hours, in cases of true lobar pneumonia, I have known respirations to diminish one third in number, accompanied with a corresponding diminution of temperature and pulse beat.

Recent experiments have proved that a high degree of heat continuously applied to the abdomen will have the effect of greatly increasing the capacity of the abdominal blood-vessels, and by virtue of this physiological effect it has been proposed to apply heat to this region of the body in the treatment of pneumonia, with the belief that it would relieve the arterial tension in the pulmonary circulation. But this method appears to me to have one serious drawback—namely, that the blood accumulated in the abdominal blood-vessels would not be sufficiently oxidized, and we would be working to our harm in thus favoring an accumulation of carbonic acid in the system.

By dilating the pulmonary blood-vessels to the extent of allowing them to easily compensate for the consolidated area, thereby receiving at the normal tension or pressure the venous blood as fast as it flows into the right heart from the systemic circulation, we are approaching the height of perfection in the treatment and management of pneumonia.

In cases where an abnormal amount of adipose tissue retards the action of the heat, an abdominal appliance has been arranged for attachment to the jacket. The abdominal appliance would also be indicated if the patient was a chronic inebriate or affected with any disease which would have been liable to have hardened the walls of the blood-vessels, allowing of only a limited relaxation.

The "pneumonia jacket" has the following principal advantages over the ordinary methods of applying heat to the chest:

1. The heat can be accurately regulated to suit the requirements of any case.

2. The heat can be continuously applied without disturbing or exposing the patient.

3. There is no dampness or chilliness, as is apt to be the case with other methods of applying heat. The moisture from the skin when the apparatus is being operated allows all the action of moist heat.

4. A continuous even temperature can be maintained indefinitely.

5. The different appliances are light and adjustable, are never out of repair, and are perfectly comfortable for the patient.

6. The working of the apparatus is entirely automatic and the labor in operating it is very slight. The work and anxiety of the nurses and attendants are reduced to a minimum, as the thermometer in the reservoir furnishes an accurate and reliable guide, while by other methods everything is uncertain and the temperature constantly varying.

7. The uninvolved as well as the involved area has the advantage of the heat with the splendid effects above detailed.

8. The patient need not be disturbed or the chest exposed during the entire course of the disease.

Having considered the effects of heat, the general management of the disease can now be considered.

In the treatment of pneumonia remedies may be administered by the following methods:

1. By the alimentary canal.
2. By hypodermic injection.
3. By inhalation.
4. By external application.

As early as possible a five-grain dose of calomel should be administered for the purpose of unloading the bowels, increasing the flow of gastric and intestinal fluids, stimulating the hepatic circulation, and thereby increasing the patient's powers of digestion and assimilation.

If pleuritic pains are intense an eighth of a grain of morphine sulphate should be administered hypodermically at once and the pain subsequently controlled by opium in one-grain doses, which not only controls pain but exerts a general stimulant effect upon the circulation.

The pain and irritant cough controlled by opium, no other remedy need be given internally unless called for to support the heart, with the only exception of perhaps controlling some simple functional disorder.

To sustain nutrition the nurse should be instructed to give the patient a glass of milk every hour, night and day. The form of milk should be occasionally changed, which will usually prevent the patient from rebelling against the method. Horlick's malted milk or Fairchild's peptonized milk powder may be alternated with ordinary milk. The former preparation is particularly nutritious and sustaining, and to the majority of sick people it presents a very pleasing and palatable beverage. There should be no laxity in the regulation of a "glassful every hour," and the rule should be carried out with as strict regularity as though we were giving the most important medicine, which it in reality is.

Beef foods in the form of "Wyeth's beef juice," "liquid beef peptonoids," or "beef juice extracted by means of a hand press" should be administered at regular intervals, so that the liquid equivalent of three pounds of beef is taken daily.

With this milk and beef diet systematically carried out we have the patient supplied with nourishment which will sustain a high degree of nerve and muscular strength sufficient to uphold a vigorous, comfortable, and unendangered heart action that should carry the patient through any ordinary attack, other conditions receiving equal attention.

It is not in the scope of this paper to discuss the many remedies designed to support the action of the heart. Medical literature on this subject is excessive and is accumulating daily. I will, however, state that I believe no cardiac stimulant should be administered until the same is plainly indicated. The stimulant treatment should be exclusively withheld until an embarrassed heart action demands the administration of the same, and it should then be given to the physiological limit. The successful general holds in reserve his heaviest guns, and at the proper moment concentrates their fire upon the enemy with unresisting vigor, and so with the judicious physician: he ever holds in reserve, ready for instant use, the cardiac stimulant, and finally, at the critical period (should such a period occur), by administering the same to the full physiological limit or until the desired effect is produced, he remains master of the situation.

The question of inhalations is an important one, but may be disposed of in a very few words, for there is but one respirable agent that has stood the test of experience and proved to be of undoubted merit. This agent is oxygen gas, given absolutely pure or diluted with air. In my experience, pure oxygen gas given in quantities of from twenty to fifty gallons daily, beginning with the first inception of the disease, has demonstrated a physiological and chemical control over certain conditions of the system invariably associated with pneumonia. As the crisis approaches it should be administered more or less continuously, particularly if there is blueness of the lips and finger-nails, which indicate systemic poisoning from accumulations of carbonic acid. Oxygen gas is, however, a very much abused agent, as many physicians do not begin its use in a case of pneumonia until alarmed at the development of unfavorable symptoms. They then commence its administration; but in many instances the condition is so far advanced, the system is so saturated by the accumulation of the poisonous products of impaired respiration which have paralyzed and disorganized the nerve centers and thereby depressed the vital forces, that reaction would be impossible even though the entire aggregation of deleterious substances could be instantly withdrawn. The physician exposes his patient to unjustifiable danger in postponing to the extreme limit the administration of oxygen, and at the same time reflects unfavorable criticism upon a valuable and reliable therapeutical agent.

To reduce the temperature by the use of antipyretics is analogous to pouring water on the fuel of an overworked engine, and is to be condemned in unqualified terms. By the use of antipyretics in pneumonia we are working to our own defeat and to the destruction of the patient. We are antagonizing the efforts of Nature.

To shorten the duration of the disease and promote resolution should not be our object in view. If we properly treat the condition and maintain nutrition, avoid complications, support the vital organs, and sustain the natural resisting powers, the disease will retain the verdict of the majority of physicians and prove itself to be self-limited.

The following cases will serve to illustrate the promptness with which the rubber jacket transmits the effects of heat:

Miss B., aged twenty-four years. Symptoms: Contracted acute bronchitis in a severe form, which quickly developed into lobar pneumonia. Profuse expectoration of typical rusty sputum. Temperature when first seen, 103° F. Respiration, 35. Breathing much distressed. Patient's condition rendered more critical by the presence also of pulmonary tuberculosis in the first stage.

Oxygen gas was administered, but without appreciable effect. Six hours later (9 P. M.) a rubber jacket was applied and a high degree of heat maintained. Within an hour respirations diminished markedly in frequency. Breathing much relieved. The following day the temperature did not exceed 102° F. Expectoration free. Respiration nearly normal. The patient made a perfect recovery, and at no time was the heart embarrassed.

Miss C., aged eighteen years. Symptoms: Following exposure, suddenly developed acute pneumonia. When I first saw her the temperature was 104° F.; pulse, 120; respiration rapid; face flushed; breathing labored; expectoration typical. Severe pleuritic pain over the middle lobe of right lung. All efforts to relieve her condition proved unavailing, and two days later I applied the rubber jacket. Almost immediate relief followed. Respirations diminished in frequency. The heart became less embarrassed. A high degree of heat was maintained for several days, when resolution occurred and the patient made a good recovery.

Mr. A., aged thirty-five years. While suffering from an attack of *la grippe* was suddenly seized by a chill, followed with severe pain over the middle lobe of the right lung. Respiration at once became labored, and when I saw him several hours later temperature was 103·5° F.; respiration, 32; pulse, 110; face flushed.

Physical examination disclosed rough respiratory sounds localized to the middle lobe. No consolidation had yet occurred. Cough dry and exceedingly irritating.

Applied rubber jacket at once. A high degree of heat was maintained. The patient became much relieved from the first. The following day at noon the temperature was 99·5° F.; pulse, 100; respiration normal; cough loose; pain wholly relieved. Second day, pulse 90; temperature normal.

The patient made an uninterrupted recovery.

DIFFUSE EXTERNAL OTITIS

FOLLOWING THE CARELESS USE OF CARBOLIC ACID.

By M. D. LEDERMAN, M. D.,

LECTURER ON DISEASES OF THE NOSE AND THROAT, NEW YORK POLYCLINIC; ATTENDING AURAL SURGEON, UNIVERSITY MEDICAL COLLEGE DISPENSARY; ASSISTANT SURGEON TO MANHATTAN EYE AND EAR HOSPITAL, ETC.

EVERY now and then an individual who has followed the directions of a friend in an attempt to cure some ailment by home treatment appears before us as an animate illustration of a "horrible example." The case I herewith report is but another instance of this oft-repeated practice, but fortunately for my patient the result has been decidedly better than one would have anticipated from the appearance of the parts at the first examination.

It is a common practice among the laity to suggest domestic remedies for the relief of itching or painful ears. Among the remedial agents usually recommended may be mentioned candle or goose grease, sweet oil and laudanum, baked onions, spirits of camphor, and ammonia. These are but a few of the many irritants employed in the household medication of this sensitive and delicate organ. As medical science advances our *fin-de-siècle* laymen become more learnedly self-assertive and generously impart their limited knowledge more authoritatively. To this fact I am enabled to report the history of an unusual case.

Julia B., aged twenty-three years, married, presented herself at my clinic, Manhattan Eye and Ear Hospital, on Monday, December 17, 1894. She stated that for four years her ears had annoyed her at different periods by an intense itching sensation which extended into the external auditory canals. Up to within a few days of the above date she was in the habit of scratching the pruritic surface with the head of a pin. This procedure gave relief, but usually brought on a watery discharge, followed by the formation of crusts. When the symptoms returned she resorted to this palliative manipulation. No pus was ever observed coming from either ear, nor was pain experienced at any time. The patient's discomfort was, no doubt, due to the ordinary form of an aural eczema. Her hearing was always good.

On December 15, 1894, the itching resisted the usual treatment, and, following the advice of a friend, Mrs. B. poured some pure carbolic acid into a glass of water and syringed the mixture into both ears. The left ear causing the most distress, she subjected it to six applications of the remedy on Saturday and one on Sunday. But one injection was thrown into the right ear. When asked how much carbolic acid was used to each glassful of water, the young woman remarked that she had not measured the quantity, but thought that it would fill two teaspoons. Further inquiry elicited the information that the medicine was not mixed with the water, so that the acid floated on top, and with each initial injection pure carbolic acid was the remedy applied. Although this treatment was employed every two hours, by means of a small glass syringe, it is astonishing that no permanent impairment of hearing resulted.

Immediately after the first syringing the patient felt a tingling in her ears, but pain caused no discomfort until the evening of the first day (Saturday). During the night her rest was continually disturbed on account of its severity. Externally, the parts had swollen considerably, and were quite sensitive to pressure. The hearing now began to fail; those attending her had to speak in louder tones, otherwise their conversation was not audible.

Sunday, December 16, 1894.—Mrs. B. could not hear at all with the left ear, but heard the voice through the right one. She noticed that during the day her urine was darker in color than normal. Muscæ volitantes appeared and the vision was perceptibly affected. Poultices had been applied, and though the pain was somewhat alleviated, their application no doubt infected the excoriated surfaces, as the appearance of the tissues indicated when the case first came under my care.

17th.—Two days after the heroic treatment was the date of my first examination. Mrs. B.'s face presented a peculiar puffy aspect, due to a serous infiltration, which had evidently originated at the pinnæ, and had extended over the malar and external infraorbital regions. The conjunctiva of both eyes was much injected; diffuse swelling of the auricles existed to such a degree as to almost obliterate anatomical relations. On the left side it was especially prominent in front of the tragus, and could be distinctly outlined over the angle of the jaw. Pressure over the mastoid caused pitting, but no sensitive areas were discovered. With the exception of the mastoid and cervical œdema, the same condition of affairs, somewhat modified, existed on the other side. Serum filled the fossæ of the auricles and exuded from beneath a pseudo-membrane which covered the tragi, antitragi, and scaphoid fossæ. Both external openings of the auditory canals were masked by the œdema. An unpleasant odor emanated from the injured structures, and as the membranous deposit aroused suspicion a culture tube was inoculated. Testing with the tuning fork permitted the exclusion of internal ear disease. The watch could not be heard with either ear, but patient distinguished the voice when spoken to in loud tones. From the history of the case, together with the appearance of the parts, a diagnosis of traumatic diffuse external otitis was made, subject to the report of the bacteriological examination, which latter excluded any doubt. Bearing in mind the possibility of an atresia of the canal as a sequela, a guarded prognosis was given.

19th.—Much pain was experienced during the night, which was relieved by hourly doses of codeine, an eighth of a grain. Owing to the sensitiveness of the cauterized surfaces, the supine position had to be assumed during attempts at rest. Sloughing was anticipated on account of the unhealthy appearance of the affected areas and the disagreeable odor which still persisted. Labarraque's solution as deodorizer was ordered. No further medication was deemed necessary.

21st.—Examination at this visit showed decided improvement. The swelling of the face and over the mastoid was almost gone. Sleep was not disturbed during the two nights passed, and pain only appeared when the parts were dressed. Furthermore, the offensive odor was not discernible. Both ears presented a more normal state, as the fossæ with their boundaries could now be plainly seen, though some œdema, with excoriations of the tragi and antitragi, still existed. Externally, on the left side, the orifice of the auditory meatus was distinguishable, but no view of the membrana tympani could be obtained, as the tumefaction of the canal had not sufficiently receded. Except for some swelling of the tragus, with denudation of the dermoid coat, the auricle of the right side was in good condition. Even here the lumen of the meatus was still encroached upon by the infiltration, so that the membrana tympani could not be definitely outlined. H. D., L. E., W. $\frac{10}{60}$; H. D., R. E., W. $\frac{15}{60}$.

As matters were progressing favorably the chlorinated soda solution was continued. Saw patient every other day until December 31st. At these visits politzerization was practiced. During the interim the œdema gradually disappeared, so that the external structures had again assumed their usual proportions. Patches of desquamated epithelium were seen in the scaphoid fossæ and canals. Both drums were now visible, thickened and retracted, with the cone of light shortened. Conversation carried on in ordinary tones was readily appreciated. H. D., L. E., W., $\frac{24}{60}$; H. D., R. E., W., $\frac{36}{60}$. An ointment of tar and oxide of zinc was prescribed for the pruritus, which again returned. Arsenic and iron were given internally. Inflation of the middle ear was continued regularly.

January 25, 1895.—Mrs. B. informed me that she heard and felt as well as ever. H. D., both ears, watch, five feet. The raw surfaces were now healed, leaving traces of their previous existence. No narrowing of either canal was observed. Inspection found no change in the drum membranes from the last examination. It is astonishing that no suppurative disease of the middle ear complicated the external manifestations. Fortunately for my patient, no permanent disturbance of her auditory perception resulted. The ocular symptoms, together with the cloudy urine, demonstrate that absorption of the acid had undoubtedly taken place.

When we consider the marked disturbance following the careless use of an antiseptic in this instance, it behooves us to be very explicit in giving directions to patients and furthermore impresses us with the importance of decidedly emphasizing the dangers lurking in the generous suggestions of lay friends.

128 East Sixtieth Street.

The New York Board of Health's Diphtheria Antitoxine, we are informed, can now be had free of cost, provided the applicant presents the attending physician's certificate of inability to pay for it. Application must be made at the board's offices, in the Criminal Court Building, in Centre Street.

Changes of Address.—Dr. Percy R. Bolton, to No. 18 West Nineteenth Street, New York; Dr. John Winters Brannan, to No. 11 West Twelfth Street, New York; Dr. Lewis A. Conner, to No. 18 West Nineteenth Street, New York; Dr. Alexander B. Johnson, to No. 46 West Seventeenth Street, New York.

THE EFFECT OF PEPPERMINT INHALATION ON EXPERIMENTAL TUBERCULOSIS.

By EDWARD R. BALDWIN, M.D.,

ASSISTANT IN THE SARANAC LABORATORY FOR THE STUDY OF TUBERCULOSIS.

Coincident with the clinical trials of the peppermint treatment described by Carasso,[*] carried on at the Adirondack Sanitarium, the following experiments were undertaken at the Saranac Laboratory under the direction of Dr. E. L. Trudeau:

1. To test the effect of the vapor of peppermint oil upon pure cultures of *Bacillus tuberculosis* as a preliminary to—

2. A test of its influence on the course of the disease in animals inoculated *per tracheam* and kept in an atmosphere charged with the vapor.

A few animals had first been treated subcutaneously by an emulsion of the oil, but very little of it was absorbed, and the method was abandoned as impracticable.

The experiments of Chamberland, Lucas-Championnière, Koch, and others have shown the disinfecting power of ethereal oils. The contact of the oil itself was found unnecessary to kill or inhibit the growth of bacteria.

The following confirms the result in the case of *Bacillus tuberculosis* with peppermint vapor:

January 27, 1894.—Twelve agar tubes were planted with pure cultures of *Bacillus tuberculosis*, twelfth generation. Six tubes were kept for controls, while the rest received three drops of ol. menth. pip. dropped on the cotton plug.

April 4th.—Good growth on all control tubes; none whatever noted on those treated with mint.

The theory stated by Carrasso [†] as the basis of his treatment for pulmonary tuberculosis presumes the germicidal influence of peppermint, which, in volatile form, penetrates the diseased area and secretions and kills the bacilli.

To attempt an imitation of the conditions experimentally, intratracheal inoculations of tubercle bacilli were made in guinea-pigs and rabbits. The animals were then put into cages where the air was kept saturated with peppermint vapor.

17th.—Each of nine guinea-pigs of similar size and weight received 0·10 cubic centimetre of a watery suspension of a pure culture of *Bacillus tuberculosis*, first generation, on serum. A small incision was made over the trachea and the needle directed downward toward the lungs. The animals were held on their backs several minutes to permit the fluid to reach the bronchi.

Four days were allowed for them to become infected. Four pigs were then reserved as controls and the rest placed in a specially prepared tight box with a glass front. Air was admitted through a number of half-inch holes, over which was placed a wad of cotton kept saturated with ol. menth. pip. The holes were near the bottom of the box, while an outlet was provided in the top two inches in diameter and connected with a ventilator shaft leading outside the animal house. During the entire time the odor was sufficiently strong to cause lacrymation when the box was opened. The table shows the result:

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[*] *Ctrlbl. f. Bakter. u. Parisit.*, June 25, 1894.

[†] *Loc. cit.*

No.	Day of death.	Autopsy.	Treated or control.
1	6th	Pneumonia, tubercular (?)	Treated animals.
2	38th	General tuberculosis.	" "
3	17th	" "	" "
4	15th	Pneumonia, tubercular.	" "
5	31st	General tuberculosis.	" "
Average.	21 days		
6	30th	General tuberculosis.	Control animals.
7	32d	" "	" "
8	32d	" "	" "
9	42d	" "	" "
Average.	34 days		

It was noted that the lungs of the treated animals were more congested than those of the controls, and two of them died with signs of tubercular pneumonia.

The virulence of the disease, aided, perhaps, by the confinement in the box and too irritating amount of peppermint, made the result of doubtful value. The next trial with rabbits is therefore more instructive.

August 2d.—Fourteen rabbits were inoculated in the same manner as above, but with a mixture of pure bouillon cultures of tubercle bacilli and crushed lung tissue of two tubercular guinea-pigs strained through sterilized muslin. Microscopic examination showed it to be free from contamination, and each rabbit then received two cubic centimetres of the fluid.

They were all put in pens for one week to permit infection to take place. Ten rabbits were then placed in a large box five feet by four feet eight inches by two feet four inches.

One end was closed by window sashes, at the bottom edge of which was left a space an inch wide for ingress of air. Along the latter opening, extending entirely across the box, was placed a tin trough, so arranged that the air passed over it. The trough was kept filled with oil of peppermint and covered with a gauze bandage to prevent the animals from getting into it.

In the top and rear of the box two-inch holes were bored at intervals for outlet of air.

The remaining four rabbits, together with one not inoculated, were confined in a box of the same shape and arrangement, save that it was just half the cubic content of the first and had no peppermint. These cages were placed together out of doors where the sunlight and air were freely admitted, while the animals were kept well fed. The volatilized oil was replaced daily, the odor being so strong as to be unpleasant all the time. The only effect apparently due to the inhalation was possibly an increase in appetite.

They showed no discomfort attributable to the vapor and often reclined close to the trough.

In all, the lesions were confined to the lungs and no differences were observed between control and treated animals. Tubercle bacilli were numerous in the softening areas, but few other bacteria were found.

Herewith is given the tabulated result:

Control.

No.	August 2d, weight. Grammes.	Day of death.	Killed.	Autopsy.
1	1,600	45th	....	Tubercular lungs; caseation; small cavities.
2	1,140	12th	....	Tubercular lungs; slightly caseated.
3	1,800	......	Mar. 8, 1895.	Tubercular lungs; caseation; cavities.
4	1,760	.....	57th day.	Tubercular lungs; caseation; small cavities.
5	1,780	......	Mar. 8, 1895.	Normal (not inoculated).

Treated.

No.	August 2d, weight. Grammes.	Day of death.	Killed.	Autopsy.
6	1,650	......	Mar. 8, 1895.	Tubercular lungs; caseation slight-
7	1,560	42d	....	Tubercular lungs; caseous pneumonia.
8	1,690	27th	....	Tubercular lungs; miliary well commenced.
9	1,200	......	Mar. 8, 1895.	Tubercular lungs; miliary and fibroid.
10	1,775	......	57th day.	Tubercular lungs; miliary; pea-sized cavities.
11	1,180	36th	....	Tubercular lungs; miliary and caseous.
12	1,750	......	Mar. 9, 1895.	Tubercular lungs; caseous.
13	1,220	16th	....	Tubercular lungs; miliary and pneumonic.
14	1,460	21st	....	Tubercular lungs; caseation.
15	1,295	33d	....	Tubercular lungs; caseation and miliary nodules.

From the cheesy walls of the small cavities in Nos. 4 and 10, killed for comparison on the fifty-seventh day, agar plate and serum cultures were made.

The plates showed a few colonies of bacteria, while good growths of *Bacillus tuberculosis* were obtained on several serum tubes in both cases.

The five animals killed seven months after the inoculation had practically recovered, though with extensive lesions in all except No. 5 (not inoculated). All were in good flesh, as they were kept under good hygienic conditions. The surviving animals were put back into pens after the third month. As recovery is not infrequently seen in rabbits well housed and fed, the result was not credited to peppermint, particularly as one control animal also recovered.

The results seem to warrant the conclusions:

1. Although ol. menth. pip. may prevent *Bacillus tuberculosis* from growing in a test tube, its parasitic existence is not hindered by even constant inhalation of the strong vapor of peppermint.

2. Although it has a high power of diffusion, its local antiseptic action in the respiratory tract is probably slight, both on the tubercle bacillus and other bacteria. (An additional observation tends to confirm this latter view. Fully as many colonies developed on an agar plate made from a swab of the posterior pharyngeal wall of a patient inhaling peppermint faithfully at the time, as on others not receiving that treatment.)

DISEASES OF THE BRANCHIAL APPARATUS,

*WITH REPORT OF SOME CASES.**

By BENJAMIN B. CATES, M. D.,
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In seeking a sign, as it were, or explanation for many of the defects and deformities of the face and neck, investigators have traced them to some vitium incident to the fœtus in embryo.

Now, the face is developed in embryo from a series of arches or processes separated by intervening sulci or sinuses, which processes are named by Rathke (who first described them) branchial. These arches divide into two sets, named preoral and postoral, or visceral, according as they are situated in front or behind the buccal cavity.

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* Read before the Knox County Medical Society, February 28, 1895.

The preoral arches unite with the fronto-nasal process from "the investing mass of Rathke." The fronto-nasal process is divided into a central, called also mid-frontal process, and two lateral ones. It is from this mid-frontal process coalescing with the lateral masses of the ethmoid derived from the trabeculæ cranii that the intermaxillary bone and lunulæ are formed—a failure of these parts to properly unite causing the defect known as harelip.

There are five postoral arches, the first of which is named mandibular, because from it is developed the lower jaw—hence the term mandible—the mouth being situated between the preoral and mandibular arches. Sometimes the buccal fissure extends back to the ear, constituting the condition known as macrostomia.

The second postoral arch is called hyoid, and forms the incus, the stylo-hyoid, and lesser cornu of the hyoid bone. The third (thyreo-hyoid) forms the greater cornu and body of the hyoid bone, the rudiment of the thyreoid cartilage, and the rest of the larynx. The fourth and fifth form the soft tissues of the neck, and hence do not form any special organ. These arches are separated by clefts which are formed previously to the thickening of the tissues which subsequently are called arches.

A portion of the first cleft persisting forms the Eustachian tube. The other clefts failing to unite properly are pathological and may give rise to a fissure, or, leaving a matrix composed of fœtal epiblastic or hypoblastic tissue, may be latent for an indefinite time, and later by proliferation give rise to a characteristic tumor—called by Roser a branchial cyst; by Langenbeck, a dermoid cyst of the sheath of the internal jugular vein; by Schede, a deep-seated atheromatous tumor; by Virchow, tumors of the branchial clefts; by Maunoir, hydrocele colli congenita; by Luschka, hygroma colli; by Lucke, an atheromatous cyst of the lymphatic glands.

However, the chief interest to us centers around some cases which show a vitiated development of the second or third branchial tract in the region of the hyoid bone, as is manifested by the appearance of a tumor evidently of the atheromatous variety; also a vitiated development of the fourth branchial cleft, evidenced by the appearance of fistulæ of congenital formation and a congenital chondrofibroma of branchial origin. According to Matas (who published a most excellent monograph in the *Medical News* for December 2, 1892, on anomalies of the branchial apparatus, and with which I have taken considerable license for the literature), branchial fistulæ appear in three different ways. They may be complete, connecting the external integument with the pharyngeal cavity; second, they may appear as blind external sinuses opening upon the cutaneous surface; thirdly, they may be blind internal sinuses opening only into the pharynx.

The seat of the external orifice is more commonly along the anterior border of the sterno-mastoid muscle and in the infra-hyoid region than elsewhere. Matas again quotes Lannelongue as classifying these fistulæ topographically as—

(1) Fistulæ opening into the concha of the ear.

(2) Fistulæ opening into the supra-hyoid region which is common to the four branchial clefts.

(3) Fistulæ opening into the infra-hyoid region.

(*a*) Median. (*b*) Lateral.

The treatment of these various affections has for its object the ultimate removal of deformity and the thorough eradication of every vestige of existing disease.

According to Senn, who made a most valuable contribution to the *Reference Handbook of the Medical Sciences* on branchial cysts, these tumors can be treated by (1) incision; (2) actual cautery; (3) seton; (4) puncture; (5) extirpation; (6) antiseptic drainage. No doubt, in the vast majority of instances, each case will be treated according to the exigencies of the case. However, when feasible, extirpation offers the best, the most thorough, and the most radical method. Again, in very young subjects, and in adults with cysts inaccessible to other operative measures, Senn recommends antiseptic drainage as a temporary measure, stating that it is sometimes followed by a permanent cure.

The diseases of the branchial apparatus that have come under my notice are reported *seriatim* as follows:

Case I.—Eva B., at the time of operation twenty-five years old. When she was nineteen years of age a tumor of the left side of the neck was noticed, which continued to increase steadily in size. It gave trouble only by reason of its increasing deformity. There was no pain connected with it, nor did it interfere with respiration or deglutition. Examination showed a tumor of about the size of a hen's egg on the left side of the neck in the superior carotid triangle; it was not painful to the touch, and it was freely movable from side to side, but not from above down.

Operation.—The tumor was removed by incision behind the sterno-mastoid muscle. The spinal accessory nerve passed over the tumor. The tumor was sacculated and adhered to the sheath of the carotid vessel. It was removed with the sac *in toto*. The interior of the tumor on incision showed a mass of atheromatous, brainlike matter. The patient rallied, and the wound healed kindly *per primam intentionem*. One point of great interest in this connection is that the pupil on the affected side after the operation remained dilated for a long time, interfering with the vision, although there never has been any flushing or sweating on that side. This inequality of the pupil disappeared to a large extent, and the vision is quite as good as before, but even now, some six or seven years since the operation, the pupil occasionally becomes dilated.

Case II.—George C.; white; nine years old; healthy. Family history good. When about five months old his mother, when bathing him, noticed a small drop of pus on the side of the neck, which, on pressure, discharged about half a fluidrachm of creamy substance. Examination shows, about an inch and a half above the right sterno-clavicular articulation, along the anterior border of the sterno-mastoid, a slight enlargement in the skin, in the center of which is a minute orifice so small as to barely admit the end of a filiform bougie for a short distance. There is no communication with the mouth. This sinus discharges a creamy-like matter once every two or three weeks.

Case III.—Andy O.; white; eighteen years of age; healthy. Family history good. Three or four weeks after his birth his mother noticed one morning, while bathing him, what she thought was a small thread on the side of the neck, which, when detached, left a small opening which discharged several drops of a yellow, creamy-looking matter. This has since discharged half a fluid ounce of a creamy liquid periodically every two or three weeks. This is more likely to discharge freely when the patient becomes overheated.

Examination shows, about half an inch above right sterno-clavicular articulation, along the anterior border of the sterno-mastoid muscle, a minute red spot like a flea-bite, in the center of which is an orifice so small as to be scarcely distinguishable. This, however, will admit the smallest filiform bougie passing along the neck toward the hyoid bone two inches or more. As the probe passes toward the hyoid bone the patient begins to cough. On reversing the probe it will pass down toward the right sterno-clavicular articulation for an inch.

Case IV.—Albert R.; fourteen years of age. He was the youngest of five healthy children. Family history good. Has a small congenital growth (evidently of branchial origin) on the tragus of the left ear, one centimetre in length, which is slightly club-shaped. It projects forward and outward from the tragus.

The following case coming under my notice by courtesy of Professor C. P. McNabb, M. D., accentuates in a marked degree the influence of heredity upon branchial fistulæ, the disease in question occurring in three generations of the same family:

Case V.—Robert B.; white; bridge builder; aged twenty-eight years. He was the third child in a family of six children. The mother had fistulæ in both ears in the upper extremity of the helix, where it joins the side of the head, and also in the infra-hyoid region, on either side of the sterno-mastoid muscle above the sterno-clavicular articulation. Two sisters older than himself had incomplete fistulæ in the upper extremity of the helix of either ear extending toward the concha, but none in the neck. One brother younger than himself has complete fistula in the helices of both ears extending into the upper extremity of the concha, so large as to be quite visible for some distance. However, he has no fistula in the neck. Again, also, this patient has a female child three weeks old with incomplete fistula in the upper extremity of the helix of the right ear.

Examination of the patient shows that the upper extremity of the helix of either ear has an incomplete fistula extending downward toward the upper extremity of the concha in either ear. On the right side, in the infra-hyoid region along the anterior border of the sterno-mastoid muscle, about an inch and a half above the sterno-clavicular articulation, there is a minute opening so small as to barely admit the smallest probe of a hypodermic syringe. This opening leads upward to a small subcutaneous tumor of about the size of a cherry just below the hyoid bone, and on reversing the probe it descends for a short distance. By squeezing, a transparent, mucoid, jellylike substance can be made to exude from the opening. However, after irritation, as by a collar rubbing, a yellowish, creamy-like substance will escape from the fistula. On the left side, diametrically opposite the opening on the right side, another small opening exists in the skin; this one, though, is quite shallow, and does not have any secretion escaping from it.

The Sloane Maternity Hospital.—The *Æsculapian* announces that on the 1st of July the present house physician, Dr. Ervin A. Tucker, is to become an assistant attending surgeon to the hospital, also tutor in obstetrics to the second-year men in the Medical School of Columbia College (College of Physicians and Surgeons), and to be succeeded as house physician by Dr. George Livingston Brodhead.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, MAY 18, 1895.

THE MINTURN HOSPITAL.

Thus ought to be styled the new hospital that is to be built at the foot of East Sixteenth Street, but from present appearances it seems to be doomed to bear the title of Hospital for Scarlet Fever and Diphtheria Patients. We sincerely trust that it is not too late to save it from such a fate. There are already too many institutions in New York that can not be mentioned by name without an exertion that amounts to a recitation. It is a real hardship to have to say Hospital for the Ruptured and Crippled, Home for Aged and Infirm Hebrews of the District Grand Lodge, New York Physicians' Mutual Aid Association, Association for Befriending Children and Young Girls, Association for the Advancement of the Medical Education of Women, Association for the Relief of Respectable Aged Indigent Females, Bethany Institute for Women's Christian Work, Society for the Relief of Destitute Children of Seamen, New York Association for the Improvement of the Condition of the Poor, Society for the Employment and Relief of Poor Women, New York Society for the Relief of Widows and Orphans of Medical Men, or the name of any one of a dozen other institutions we could mention. Moreover, there is no need of indicating the precise scope of a hospital in its title; indeed, it may in some instances be detrimental, for who can tell how often the subjects of malignant disease have been caused unnecessary mental suffering by being taken to a cancer hospital? It is true, no doubt, that a person affected with scarlet fever or diphtheria learns the nature of his illness at some time during its course, but the information is given to him gently and with a tact well calculated to allay his fears; is no risk run by changing all this and bluntly telling him that he is to be taken to a place the very title of which may be appalling to him? By all means, let this new hospital be named in honor of Mrs. Minturn. It is to her generosity and benevolence that it will owe its origin, and it is fitting that it should bear her name. We can understand that she should shrink from such a perpetual publication of her beneficence, and we can imagine no other defensible reason for giving the hospital any other name than hers, but any such feeling that she may entertain, creditable as it is to her modesty, should, we think, be overcome by considerations like those we have mentioned. If it is imperative to retain the long drawn out title of Hospital for Scarlet Fever and Diphtheria Patients, at least let her name be prefixed to it, even lengthening it a little, and then it will soon come to be spoken of familiarly simply as the Minturn Hospital.

MINOR PARAGRAPHS.

A LIBEL SUIT WON BY A YOUNG DOCTOR.

About two years ago some of the New York newspapers published fantastic accounts of certain unconventionalities alleged to have taken place in a Fifth Avenue boarding house in which two young doctors, Dr. Achilles E. Davis and Dr. B. F. Parrish, happened to have quarters. These young gentlemen were held up before the public as having been implicated in scandalous goings-on in the house, and certainly must have been injured materially in the estimation of those of their acquaintances who are accustomed to give credence to newspaper gossip. Dr. Davis brought a suit for libel against the Sun Printing and Publishing Association, and we are very glad to learn that the jury brought in a verdict for $2,500 in his favor. We are informed that this was but a test suit, and that the other offending newspapers will be sued by Dr. Davis and Dr. Parrish. By pursuing this course they are not only vindicating themselves, but doing a public favor, and we hope they will meet with complete success in their suits.

AN IMPORTANT CONTRIBUTION TO DIPHTHERIA ANTITOXINE LITERATURE.

One of the weightiest pieces of testimony in favor of the antitoxine treatment of diphtheria appeared in the last number of the *Archiv für Kinderheilkunde.* It is an article by Dr. Adolf Baginsky and Dr. Otto Katz. Dr. Katz gives very full histories of a hundred and sixty-seven cases of diphtheria treated with the Aronson antitoxine. The authors say that at the outset they were very skeptical concerning the antitoxine treatment, but that when they had seen case after case of the gravest kind take a most favorable turn after it had been employed they came to the conclusion that it was time to reconsider. Their present impression is that, while the antitoxine is not a cure-all, it will exert the most favorable influence in the majority of the worst cases of diphtheria.

"ENTERPRISE" OR INSOLENCE?

An esteemed member of the faculty of one of our New York medical schools has sent us certain documents lately received by him from a Philadelphia firm of publishers of medical books. Our friend asks: "Isn't this sort of insolence worthy of an editorial blast?" Mere mention of the nature of the inclosures will, we think, be all that is necessary. One of them is a printed form for the professor to fill out and transmit to the clerk of the college. It reads as follows: "Please see that the following book, viz.,........ is given a prominent position in the printed 'text-book list' under the department of........ in the next college catalogue and announcement." The other is a blank for him to use in reporting to the publishers the fact that he has carried out their wishes, in estimating for their benefit the number of copies of the book that the class would probably buy, and in intimating where a new edition of it may be sent to him, if any is issued.

ITEMS, ETC.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from April 28 to May 11, 1895:*

Snyder, Henry D., First Lieutenant and Assistant Surgeon, is granted leave of absence for two months, to take effect upon the conclusion of his examination to determine his fitness for promotion.

Crampton, Louis W., Captain and Assistant Surgeon, will report in person to the president of the examining board appointed to meet at Denver, Col., on May 14, 1895, for examination for promotion.

Ewen, Clarence, Major and Assistant Surgeon. The leave of absence granted him on account of sickness is extended three months.

Johnson, Richard W., Captain and Assistant Surgeon, is relieved from duty at Washington Barracks, District of Columbia, and ordered to Fort Huachuca, Arizona, for duty, relieving Wilcox, Timothy E., Major and Surgeon. Major Wilcox, on being thus relieved, is ordered to Fort Schuyler, New York, for duty.

Matthews, Washington, Major and Surgeon. The extension of leave of absence on surgeon's certificate of disability granted him is further extended four months.

Waters, William E., Major and Surgeon, is granted leave of absence for one month and fifteen days, to take effect on or about June 16, 1895.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending May 11, 1895:*

Baker, J. W., Passed Assistant Surgeon. Detached from the U. S. Steamer Enterprise and ordered as recorder of the Naval Medical Examining Board.

Barnum, M. W., Assistant Surgeon. Resigned from the navy, May 7, 1895.

Beyer, H. G., Surgeon. Ordered to the U. S. Steamer Monongahela.

Boyd, Robert, Assistant Surgeon. Resigned from the navy, May 8, 1895.

Drennan, M. C., Surgeon. Ordered for examination preliminary to promotion.

White, S. S., Passed Assistant Surgeon. Ordered to the U. S. Steamer Bancroft, June 8, 1895.

Wilson, H. D., Assistant Surgeon. Detached from the U. S. Steamer Vermont and ordered to the U. S. Steamer Monongahela.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 14, 1895:

DISEASES.	Week ending May 7.		Week ending May 14.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever..................	9	7	2	1
Scarlet fever.................	87	13	77	17
Cerebro-spinal meningitis....	3	3	2	1
Measles.....................	278	27	256	19
Diphtheria.................	233	58	220	40
Small-pox................	0	0	0	0
Tuberculosis...............	145	101	85	96

Society Meetings for the Coming Week:

Monday, *May 20th:* New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Chicago Medical Society; Cleveland Society of the Medical Sciences; Hartford, Conn., Medical Society.

Tuesday, *May 21st:* Missouri State Medical Association (first day—Hannibal); Pennsylvania State Medical Society (first day—Chambersburgh); American Association of Military Surgeons (first day—Buffalo); New York Academy of Medicine (Section in General Medicine); New York Obstetrical Society (private); Ogdensburgh, N. Y., Medical Association;

Syracuse, N. Y., Academy of Medicine; Medical Society of the County of Kings, N. Y.; Baltimore Academy of Medicine; Hampden, Mass., District Medical Society (annual—Springfield).

Wednesday, *May 22d:* Missouri State Medical Association (second day); Pennsylvania State Medical Society (second day); American Association of Military Surgeons (second day); Connecticut Medical Society (first day—Hartford); New York Pathological Society; New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Society of the County of Albany, N. Y.; Philadelphia County Medical Society.

Thursday, *May 23d:* Missouri State Medical Association (third day); Pennsylvania State Medical Society (third day); American Association of Military Surgeons (third day); Connecticut Medical Society (second day); New York Academy of Medicine (Section in Obstetrics and Gynæcology); New York Orthopædic Society; Roxbury, Mass., Society for Medical Improvement (private); Pathological Society of Philadelphia.

Friday, *May 24th:* New York Society of German Physicians; New York Clinical Society (private); Yorkville Medical Association, New York (private); Philadelphia Clinical Society; Philadelphia Laryngological Society; Cleveland Medical Society.

Saturday, *May 25th:* New York Medical and Surgical Society (private).

Answers to Correspondents:

No. 434.—The method seems to be original with you; at least we have not succeeded in finding any mention of it in literature.

No. 435.—If a physician is bent on entering upon a specialty, we think he should choose that one for which his inclination and his past experience best qualify him. Your question, "Which branch of the profession offers the best inducement for special study and work?" can not, we think, be answered satisfactorily in general terms.

Births, Marriages, and Deaths.

Married.

Wertenbaker—Girardeau.—In Milton, Mass., on Tuesday, April 30th, Dr. Charles Poindexter Wertenbaker and Miss Alice De Lancey Girardeau.

Died.

David.—In Dillon, S. C., on Saturday, May 4th, Dr. William J. David, in his sixty-eighth year.

Forsyth.—In Providence, on Saturday, May 11th, Dr. Frank L. Forsyth, aged forty-one years.

Halsey.—In Brooklyn, on Tuesday, May 7th, Dr. John Condit Halsey, in his eighty-third year.

Nichols.—In Canandaigua, N. Y., on Wednesday, May 8th, Dr. Henry W. Nichols, aged sixty-five years.

Porteous.—In Poughkeepsie, N. Y., on Saturday, May 11th, Dr. James G. Porteous, aged fifty-six years.

Sutherland.—In Washington, on Friday, May 10th, Dr. Charles Sutherland, formerly surgeon general of the army, in his sixty-fifth year.

Letters to the Editor.

HOW TO MAKE IODOFORM GAUZE.

New York, *May 13, 1895.*

To the Editor of the New York Medical Journal:

Sir: At the request of a number of gentlemen who have attended my clinics I desire to make public through you my formula for making a surgical dressing impregnated with iodoform. Fine-mesh gauze is steam-sterilized. It is then dried. After drying, the gauze is soaked in a twenty-per-cent. solution of iodoform in ether for ten minutes. It is taken out and the excess of ether wrung out with the hands. The gauze is now placed in a basin and covered with a towel. It is left for twelve hours in a warm room, after which time it will be found that the ether has entirely evaporated. The gauze is now of a greenish-blue color, presenting the characteristic starch-iodine reaction. It is unfit for use in this state, the iodine being too free.

The next step is to soak the gauze for twelve hours in a watery solution of bichloride of mercury, 1 to 4,000, for an hour or so. This acts as a "fixing agent," and the beautiful golden color of iodoform again appears. The gauze is now wrung as dry as the hands can make it and preserved in glass jars. Prepared in this way, the iodoform is not held in the gauze in mere mechanical association, but is in every bast cell of the fiber (cotton) of which the gauze is composed. The advantage of this is manifest: such a dressing can not be poisonous, as the iodoform is not absorbed. The addition of discharges and blood to the gauze again turns it greenish-blue, showing that the iodine is again in a free state. So, when the dressings are saturated they are yet sterile. In cavity walls, there being no glycerin in the gauze, no serous exudation is induced. This material has been used by me for five years or more, and I may say it has largely influenced the results as well as after-treatment of my operations. I estimate that I make one dressing where three are made when other gauzes are used.

For instance, I leave a Mikulicz packing in the abdomen for two weeks and when it is removed there is no pus, and no rise of temperature while it is in.

In one case where I did a successful hysterectomy for puerperal septicæmia the last piece of gauze was not removed before the tenth day. In curettage for gonorrhœal and septic endometritis the gauze stays in for five or more days.

In my method of operating for ventral hernia, the first dressing is made in from ten to fourteen days.

Ablations of the uterus are not dressed before the tenth or twelfth day.

This is the only dressing I have ever found which is powerfully antiseptic, is non-irritant to the tissues, and remains sterile when soaked with discharges from an infected area.

It is perhaps well to mention that the dressing is prepared under an aseptic procedure as precise as that employed at an operation.

As to quantity that may be used: five yards long, one yard wide, in a puerperal uterus; sixteen yards long, four inches wide, in an obliteration of the pelvic cavity; nine yards long, four inches wide, after a sacral resection; and in no instance has there been the least evidence of iodoform intoxication.

So far as the chemistry of the procedure is concerned I have been told it is as follows: When the gauze is green after the ether has evaporated there is iodide of starch and there is free iodine; when the bichloride has been added there is bichloride in the starch and there is iodoform; when the bichloride is changed to calomel by blood, etc., the iodine again becomes free and the dressing is again greenish-blue. But I can not say whether this is true so far as the chemistry is involved. Certainly marvelous results are obtained with it. W. R. Pryor, M. D.

YELLOW FEVER.

Jacksonville, Fla., *January 29, 1895.*

To the Editor of the New York Medical Journal:

Sir: Not the least interesting among the items in your *Journal* are the weekly reports of infectious diseases in New York.

In the present issue, January 26th, I notice the report of a number of cases of scarlet fever, measles, diphtheria, and smallpox, with a large percentage of deaths from scarlet fever and diphtheria.

These are universally regarded as actively contagious and ofttimes fatal diseases; yet there is no excitement, no alarm, no approach to a panic in the city or the country.

Suppose the occurrence of a case, or even a "suspicious" case, of yellow fever in the South, a circumstance extremely probable in the existing unsanitary condition of our cities, what, then, would be witnessed? Every paper in the Union would publish the fact with glaring headlines; surgeons of the Marine-Hospital Service and other so-called "guardians of health" would flock to the doomed locality; fugitives in great numbers would rush from their comfortable homes without the means to be comfortable elsewhere; quarantine restrictions would be enforced; travel would be arrested or impeded; business would be suspended, for an armed cordon would surround the ill-fated city; the well would be imprisoned with the sick within the limits of the infected locality, to increase the number of cases and multiply the deaths; families occupying houses within five or six hundred feet of the victim would be forcibly ejected from their homes; the families of the sick would be violently separated from their suffering loved ones; individual, municipal, and State rights would be ignored or disregarded; appeals for aid to the charitable people of the country would be issued; and the thousands of dollars in money and supplies thus raised would be squandered by self-appointed "sanitary committees."

And yet, by common consent of those who have personal knowledge of yellow fever, it is not communicable from person to person; it is not at all contagious. Dr. Sternberg, surgeon general of the army, declared of the camp near Memphis: "In no case did they [the sick] communicate the disease to their families or bed-fellows."

Is there any explanation of this gross, cruel inconsistency upon the basis of facts and common sense?

George Troup Maxwell, M. D.

AGORAPHOBIA.

390 Boylston Street, Boston, *May 7, 1895.*

To the Editor of the New York Medical Journal:

Sir: In the issue of your valuable *Journal* for March 30th there is a very interesting account of a case of agoraphobia from the pen of Dr. Neville Taylor. This condition is so rare that any contribution to its study is of importance. I ask the courtesy of your pages to allude to a case under my own care, some years ago, reported in the *Boston Medical and Surgical Journal*, vol. cxvii, p. 407, which presented an almost classical array of the known symptoms of this obscure malady. I am now able to add the subsequent history of this patient, who for a period of years has been under my observation.

The constant characteristic phenomena of the disease gradually increased until he could hardly be persuaded to step out of his house, and was quite wretched if it became necessary for him to cross the street in front of his own door. He became more and more the victim of terror of space, often feeling lost in the room in which he was occupied in his daily duties. He at length underwent a gradual mental change which resembled a mild form of senile dementia, though he was not in years in which this degeneration would be expected. His bodily health became depraved, and at last he was reduced to a considerable degree of feebleness. He died a short time ago, in consequence of influenza. There was at no time any real improvement in the functional disturbance of the mind, though he would appear at times less distressed by the idea of space than at others. This patient presented another point of special interest in the fact that he had been from a child totally blind, and it is worthy of question how far the study of agoraphobia in this class of individuals might contribute to the establishment of the at present theoretical so-called "space-organ," to which for years physiologists have been directing some attention.

It does not seem to me that agoraphobia should be properly classed among the affections accompanied by "fixed ideas," as suggested by the writer of the article alluded to. In true agoraphobia there are no indications of active mental disturbance in any other direction. There is no delirium, the patient is not subject to hallucinations of hearing, he is not influenced by impulsive emotional explosions or crises of any convulsive character. He is simply the victim of an uncontrollable and overpowering terror at the idea of extended space about him. He fully understands that no real occasion for his terror exists; but his frame of mind is similar to that of the traditional ghost-seer, who also knows that his fears are utterly groundless. No one would think of pronouncing such a person insane, and there would seem to be no great reason for classifying agoraphobia among the established forms of mental diseases. The result in my case fully bears out the prognosis indicated by Dr. Taylor, in which he states that he does not share the hope of the patient as to the future. The careful record of further cases of this interesting condition is much to be desired.

Albert N. Blodgett, M. D.

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of March 6, 1895.

The Vice-president, Dr. Parker Syms, in the Chair.

Rhachitic Deformity of the Chest.—Dr. W. R. Townsend exhibited a little boy with a rhachitic deformity of the chest, consisting in a very marked depression of the lower portion of the sternum exactly in the median line. There had been apparently little or no interference with the breathing capacity, for there had been a compensatory projection of the chest posteriorly. There had been no displacement of the heart. The question of prognosis was, he said, interesting as regarded the effect of the deformity on the function of the lungs. It would seem that by proper gymnastic exercises sufficient expansion of the lungs could be secured. The mother of this child had stated that she had not noticed this condition until after an attack of whooping-cough two years before.

Dr. E. Le Fevre said that he had seen at the clinic a number of children with such deformities of the chest, but most of them had been older, and they had given a history of rickets. The parents had frequently stated that they had not observed the deformity until after an attack of some acute pulmonary disease. Most of the rhachitic deformities of the chest seen in children, he thought, could be accounted for on the ground that the air could not gain access to the lungs in a sufficiently rapid manner, and hence there would result a vacuum, unless depressions of the soft and bony structures occurred. Examination of the boy had shown but little interference with the vital capacity. Along the depression of the sternum the heart could be felt pulsating. Unless the child should have a severe attack of bronchitis or of diphtheria or any condition that interfered with the air entering the lungs freely during inspiration, it was not likely that this deformity would be increased. The chief defect appeared to be in the sternum, and as a result the support ordinarily given to the ribs had been insufficient. The liver dullness had begun about two finger-breadths below the nipple line on the right side. It seemed to him that the prognosis was not unfavorable.

Dr. Robert T. Morris thought that while the bones had been so soft, it would have been easy to slip a hook under the xiphoid cartilage and make it convex, and it could be kept in that position by pressure made on the ribs on either side. This could be accomplished mechanically, but whether or not this would be productive of any material benefit to the child was another matter.

Spontaneous Rupture of the Mastoid Cells.—Dr. Gorham Bacon presented a girl, two years of age, who had been first seen on November 9, 1894. The right ear had begun to discharge nineteen months before, and four months ago a swelling had suddenly appeared behind the ear, and had subsequently ruptured spontaneously. When first seen, on November 9th, there had been a large sinus directly over the antrum, and thick, foul-smelling pus had been discharging from the ear. On the same day a long incision had been made down to the bone, just behind the attachment of the auricle, and a sequestrum, about an inch by three quarters of an inch, had been removed. The entire cavity had been scraped and many unhealthy granulations taken away. The wound had been packed with iodoform gauze, after having been syringed with bichloride solution (1 to 5,000), and bandaged. As a specific taint had been suspected, iodide of iron had been administered to improve the general health. Healing had been prompt.

The speaker exhibited the sequestrum and also photographs showing the pneumatic cells alone, the partly pneumatic and partly diploëtic cells, and the more or less sclerosed osseous tissue.

Dr. Walter C. Wood said that an interesting case of this kind had come under his observation. A man had entered the hospital in a somewhat apathetic condition. The house physician had made a diagnosis of alcoholism at the time, but on examining him later the speaker had found well-marked evidence of mastoid disease. About half an ounce of pus had been evacuated from beneath the periosteum and from the cells. It had been then ascertained that there had been mild symptoms existing since early in January. This patient had been prominent in a recent large strike, in the management of which he had been severely criticised for his peculiar mental condition. On admission, his pulse had been 60 and his temperature 100° F.

Dr. H. H. Seabrook said that some time ago he had seen a case of brain tumor. One of the best-known neurologists in this city had diagnosticated the case as one of abscess of the brain following middle-ear disease. The man had had a history of a discharge from the ear some five years previously. When first seen he had had facial paralysis and a hemiplegia of the opposite side, indicating that the tumor was in the lower portion of the medulla. As a matter of fact the tumor had been found post mortem to be situated in the temporo-sphenoidal lobe. It was remarkable, the speaker thought, that this neurologist should have alleged that the symptoms present had been due to an otorrhœa which had ceased some years before.

Dr. Chandler thought these cases illustrated the importance of early treatment. Two months ago he had been called to a child with otitis media. Shortly afterward there had been evidence of mastoid trouble. The abscess had been evacuated, and after two or three weeks a small piece of bone had been discharged. There had been a communication with the mastoid cells, but, although the operation had been done less than two months ago, the wound had nearly healed.

Dr. Bacon said that he had only presented this case on account of the occurrence of spontaneous rupture in a child. He believed that if mastoid disease was treated early, there would rarely be occasion for operation. If a natural or an artificial leech was applied directly over the mastoid cells and then ice used in the first stage of the inflammation, instead of poultices and blisters, many cases would be aborted.

He also wished to make a most emphatic protest against the use of heat applied to the mastoid process, especially in the way of poultices, also against blisters. He preferred, in the early stage, the use of cold, applied by the ice bag or Leiter coil, and if this did not succeed, then the mastoid cells should be opened.

Chronic Prepatellar Bursitis; Excision of the Entire Bursa; Complete Recovery.—The Vice-president reported the following case: G. A., aged twenty-three years. He was admitted to Lebanon Hospital on January 29, 1895. His general health was excellent. Previous history good. Patient is a piano mover and porter, and frequently brings heavy pressure on his knee. He states that there was a slight swelling over his left knee which did not trouble him till four weeks previous to his admission. At that time the prepatellar bursa became more swollen, and was very painful and tender. When he was admitted to the hospital the region in front of the knee was swollen and red. Examination showed the bursa to be distended with fluid. Hard masses could be felt which appeared to be free bodies. The sac was evidently considerably thickened. The patient walked with difficulty and could not flex the knee. An operation was performed on February 4th.

Under careful aseptic conditions the bursa was dissected out entire. The incision through the skin was made in the long axis of the limb. The separation of the sac was not difficult except where it was attached to the joint capsule. Healing took place by primary union and the patient left the hospital in ten days, with perfect function in the joint.

Appendicitis.—Four cases were reported by the Vice-president.

Case I.—Appendicitis; second attack; large paratyphlitic abscess; operation on the fourteenth day of disease.

David S., aged forty-five years; general condition was good; general history negative, except as to one previous attack of appendicitis. Admitted to Lebanon Hospital.

About a year previous the patient was in Lebanon Hospital with an attack of appendicitis which resolved without operation.

Thirteen days before coming to the hospital this time, the patient was taken ill with abdominal pain and fever and gave the ordinary history of an appendicitis. His physician treated him with leeches, blisters, and poultices, and as he failed to improve sent him to the hospital. On admission the patient had rapid pulse and coated tongue, and the temperature was 103°. A well-marked swelling was found in the right iliac region. It was tense and showed signs of fluctuation, and a large paratyphlitic abscess was diagnosticated.

A simple incision was made, and pus was found when the abdominal wall was cut through, about a pint being evacuated. The cavity was explored with the finger, but further than that the appendix was not sought and no trace of it was found. The cavity was treated as a simple abscess cavity. The patient's temperature fell after the operation and soon reached normal. He made a rapid and uneventful recovery.

Case II.—Acute primary appendicitis; localized peritonitis causing dense adhesions; ruptured appendix; small amount of pus; large enterolith; operation on the fifth day.

John D., driver, aged twenty-five years. He was admitted to Lebanon Hospital, December 15, 1894.

Previous history good and negative. No history of any previous attack. Four days before admission he was taken suddenly ill with a severe attack of vomiting and abdominal pain, and later fever. He was constipated at the time. When admitted he had a temperature of 102° F., pulse, 100. His face had an anxious expression, and the tongue was coated. He complained of pain in the abdomen. Palpation showed a well-marked tumor in right iliac fossa, with greatest point of tenderness over the seat of the appendix. From the history and symptoms it was decided that he had a recently ruptured appendix, surrounded by dense and firm adhesions. An operation was performed on December 15, 1894. The ordinary incision at the outer side of the right rectus muscle, about four inches in length, was made through the abdominal wall. The intestines were found to be firmly matted together by remarkably thick adhesions. The coherent mass was turned inward, the general cavity carefully protected by flat sponges, and the appendix sought for. It was found behind the cæcum in a dense mass of adhesions. The appendix was distended with pus. There was about a drachm of pus outside of the appendix. A small ragged opening in the appendix was found about an inch from its base, which had been caused by sloughing. Through this opening could be seen a body which proved to be an enterolith of about the size of an ordinary hazelnut. The appendix was firmly attached to the cæcum and its separation was difficult. The peritoneal coat was stripped up to make a flap, which was stitched over the stump after the appendix was ligated and removed. Two silk sutures were passed through the abdominal wall and left untied till granulation had progressed well. The wound was packed with iodoform gauze. The patient made a prompt and uneventful recovery.

Case III.—Acute suppurative appendicitis; dense adhesions; large, deep-seated abscess; laparotomy; recovery. Operation on the eighth day.

Miss McK., aged fifteen years; previous and general history good. Was well until January 1, 1895, when she was taken ill with abdominal pain and tenderness, greatest over the appendix. Her temperature was elevated and pulse accelerated. The case proceeded as usual for a few days and on the fourth and fifth days the symptoms were all better. On the sixth day she again had increased pain and fever, and more frequent pulses. I was called to see her on the seventh day and found her with temperature, 101° F.; pulse, 120. There was a well-marked tumor. Diagnosis was made of ruptured appendix, with large, deep-seated abscess. Immediate operation was proposed and consented to, and the operation was performed on January 7, 1895, at the patient's home. Dr. Joseph Gray and Dr. O'Brien assisted.

The ordinary incision was made at the outer side of rectus muscle. On opening the abdomen the intestines were found to be firmly bound together by thick adhesions. This mass was deflected toward the median line; the general cavity was protected by flat sponges. Then an abscess was carefully opened and pus was sponged away as it escaped. This abscess contained about two ounces of pus, and was situated behind the cæcum at the normal site of the appendix. After the pus had escaped through the small opening the cavity was thoroughly opened by tearing apart the adhesions, and an attempt was made to find the appendix. This attempt was not successful, and it was not persisted in long, for the following reasons: 1. Because it was doubtful if there were an appendix to find, as it not unlikely had been shed by sloughing. 2. Because it was considered dangerous to break up the adhesions beyond a moderate extent.

Two provisional sutures of silk were passed through the abdominal wall; the wound was packed to the bottom of the cavity. The patient progressed well. She has been up and about since the third week after the operation. A small sinus still persists, now about an inch in depth. This seems to result simply from slow healing.

Case IV.—Acute gangrenous appendicitis; perforation; no adhesions; general suppurative peritonitis; cœliotomy; removal of appendix; toilet of peritoneal cavity. Recovery.

M. R., aged fifty-one years. His general health was good, also his past history, except for some attacks of indigestion. No history of previous appendicitis. Was well until February 1st, when he was taken suddenly ill early in the morning with vomiting and severe abdominal pain. He did not send for his physician, Dr. Gray, until Saturday afternoon at about four o'clock. Dr. Gray found him in a chill with a temperature of 103°, pulse, 130. The doctor examined him and made the diagnosis of appendicitis, and advised early consultation and probable operation. He very properly applied ice to the abdomen, had the patient kept on his back in bed, administering no opium.

I saw the patient with Dr. Gray at eight o'clock on the same day, thirty-six hours after the first symptoms. Temperature was then 100·2°, pulse was 100, but on slight exertion went to 120. The patient's face was deeply flushed and rather bluish, showing poor capillary circulation. He was rather lethargic, and complained of but little pain. There was great tenderness over the seat of the appendix; there was very marked tympanites; the distention was so great as to obscure the result of palpation; no localized tumor could be felt, but the greatest resistance in the muscles was over the appendix. Immediate operation was proposed and assented to.

It is interesting to note here that at this time his symptoms seemed to show improvement. His pain was less severe, his temperature had fallen two degrees, and he said he felt better, but there was something about his expression and the character of his pulse that prompted me to say that I feared he had grave abdominal sepsis, and that his heart might not stand the shock of the operation, which was performed. The ordinary incision along the outer margin of the rectus muscle was made; owing to the distention its length was made about six inches. Before the peritonæum was opened it bulged out into the wound like a coil of intestine. On opening the peritonæum a quantity of sero-purulent fluid escaped, and the wound was filled with coils of dark-colored, swollen, distended, inflamed intestine, bathed with this fluid, and coated here and there with patches of thick, grayish-colored lymph. The peritonitis was general and there were no adhesions. The large swollen appendix was found behind the cæcum attached by a short mesentery. From a minute opening near its base there escaped some soft material which seemed like fæcal matter and pus. The appendix was loosened, ligated, and removed. The stump was cauterized and then covered with a peritoneal flap.

The patient's condition was bad, and his pulse failed a good deal in character although the operation was not a long one. Although it was desirable on account of the general peritonitis to do a median section and thoroughly cleanse the cavity, it was deemed unwise to do so on account of the patient's condition. The incision was rapidly increased in length, and through it a large amount of the intestine was brought out and washed and wiped with sterilized sponges; then the abdominal cavity was flushed with boiled water; finally, the intestine was returned, and the wound packed with iodoform gauze. This packing was sewed in to prevent protrusion of the distended intestines.

The patient was put to bed in about an hour from the time of beginning the etherization. His pulse was very weak, but not very rapid. For twenty-four hours his case seemed hopeless. His pulse continued weaker, and the distention of his abdomen was something remarkable, and he certainly had paresis of the intestines from the septic peritonitis, so that his case seemed more like one of obstruction than of inflammation. A saline was administered as long as his stomach would tolerate it, and several high enemata were given. At the end of twenty-four hours he passed some gas *per rectum* and later some fæcal matter was passed with one of the colon flushings. The patient at once began to improve and has made an uninterrupted recovery. Now, at the middle of the fourth week, the wound is almost entirely healed.

Dr. J. M. Brook said that he had seen several cases of appendicitis in women in which it had been difficult to make the diagnosis between pyosalpinx and appendicitis. Vaginal examination in one case had shown a mass on the right side behind the uterus, while the menstrual symptoms had pointed rather to a pyosalpinx. At the operation, both pyosalpinx and appendicitis had been found to be present. In such a case, it was not possible to say before operation just what condition was present. He mentioned this to ascertain the experience of others in regard to appendicitis in women.

Dr. Robert T. Morris said that the temperatures in the cases reported by Dr. Syms had seemed to him rather higher than the average. It should be remembered that when the colon bacillus existed apparently in pure culture, the temperature would seldom fluctuate more than one degree on either side of 100°, and it might remain perfectly normal during all the stages of a most destructive attack of appendicitis. The pulse, however, was prone to fluctuate considerably, reaching perhaps a hundred and thirty or a hundred and forty beats a minute, and being small and thready. Aside from this disagreement of the vital signs, there was but little to indicate the severity of such cases. In one or two instances in which he had seen small collections of pus, and nearly pure cultures of streptococci, there had been high temperatures—103° or 104°. He wished very much that other surgeons would pursue this line of investigation, and so furnish corroborative evidence regarding the effect of certain bacilli on the vital signs. It should not be expected that the appendix was destroyed when abscess occurred. It was wise in a few cases to do as Dr. Syms had done—not search far for the appendix if the patient was quite feeble—but we should not believe that the appendix was necessarily destroyed in such cases. He had removed appendices which had been nearly whole, years after the evacuation of large abscesses. The concretion referred to had probably been phosphatic. The majority of them were fæcal or phosphatic. Occasionally, a concretion was composed of more than one half of fat, probably due to retrograde fatty change in the lymphoid cells. According to his experience, the family physician was apt to feel considerable concern lest the fistula remaining after appendix operations would not heal. He had not found it necessary to perform secondary operations in such cases, for although they were often quite slow in healing, this almost invariably had occurred without the necessity of operative interference. It was not uncommon to observe an apparent improvement in the condition of the patient when the appendix had become gangrenous. This sudden improvement in the symptoms often led the attending physician, as well as the family of the patient, to urge a postponement of the operation. It was sometimes difficult to distinguish between appendicitis and pyosalpinx; they not infrequently occurred together. He thought that the appendix often became infected secondarily from adherent oviducts.

Dr. Wood said that the vital question was as to whether or not the appendix should be removed in cases presenting acute symptoms. His experience had taught him that it was not wise to be too radical in cases in which the appendix had been firmly bound down. Out of sixty cases that he had observed there had been but one permanent fistula, and this had been due to sloughing of the wall of the cæcum. This could, of course, be cured if the patient would consent to operation. The Mikulicz drain, consisting of a bundle of lampwicks, was very valuable in these cases, and was an exceedingly potent means of producing drainage. The edges of the wicks were placed so as to radiate in every direction. Their action was astounding.

Dr. Houghton thought it was quite possible in the early stage of appendicitis to mistake an accumulation of fæcal matter in the colon for a beginning appendicitis. This had occurred to him a number of times.

Dr. W. Evelyn Porter said he had had two or three cases in which the symptoms had been due solely to an enteritis brought about by fæcal impaction. Unless there was very positive evidence of inflammatory process outside of the appendix, it seemed to him that the bowels should be very thoroughly opened in order to remove this possible source of error. The reader of the paper was to be congratulated on the results obtained in his cases, particularly in the last one. In the septic cases one of the greatest difficulties to contend with was the absolute paralysis of the gut and the impossibility of moving the bowel. Undoubtedly in the case reported a certain amount of sepsis had remained after the operation, and yet as soon as the bowels had moved there had been a subsidence of these symptoms. It was the rule that where a free escape of gas and a fæcal movement could be secured, recovery ensued. Any suggestions regarding the various means taken to accomplish this, he felt sure, would be instructive and acceptable to all present.

In operating in quite a large number of cases of tubal disease he had been surprised at the very variable situation of the appendix. In two cases he had found the appendix attached to the left Falloppian tube and bound up in the adherent mass on that side; in a great number of cases the appendix had been found adherent to the Falloppian tube on the right side. Where there was no evidence of general sepsis it seemed to him often wiser to make no attempt to remove the appendix, as in the effort to do this there was great danger of infecting the peritoneal cavity.

Dr. George P. Biggs said he had been interested in the remarks regarding the association of appendicitis and salpingitis, and the difficulty, at times, of determining, even at autopsy, at which point the disease process began. With two diseases so common as these it was not surprising that they should be found associated, nor difficult to understand that they might have originated independently without causal relation one to the other. In autopsy work the appendix was not very infrequently found adherent to the uterine appendages of the right side, sometimes due to appendicitis and sometimes to salpingitis with localized peritonitis.

The speaker objected to Dr. Morris's statement that appendicitis was frequently due to salpingitis, unless he referred simply to localized peritonitis about the vermiform appendix; and this could hardly be of serious import, unless, in contracting, the adhesions produced kinking of the tube, and thus interfered with the circulation. An inflammation extending from a salpingitis sufficiently intense to invade the deeper coats of the appendix would almost certainly produce a rapidly fatal peritonitis. He had recently made an autopsy on a patient who had died a few days after the removal of the broad ligament for supposed purulent salpingitis. The appendix had been found behind the cæcum and extraperitoneal. A perforation had existed about its middle, and the tissues from this point to the site of operation had been extensively infiltrated with pus. Subsequent microscopical examination of the material removed at the operation had shown a normal Falloppian tube and ovary, with diffuse purulent infiltration of the tissues of the broad ligament, showing clearly a primary, perforating appendicitis, with secondary suppuration of the tissues of the broad ligament. The symptoms had been such as to suggest primary salpingitis.

Dr. J. B. Gibbs said that he had seen many fæcal impactions, most commonly at the sigmoid flexure. The giving of cathartics in such a case was by no means free from danger. If the obstruction was very great, this increased peristalsis might give rise to such pressure as to seriously jeopardize the integrity of a weak spot. He did not think any one doubted the propriety of opening an abscess when it could be detected and located, and hence the whole matter of operating on cases of appendicitis was one of accuracy of diagnosis. At one time he had been asked to see a case of appendicitis in consultation. Examination with the hand *per rectum*, under ether anæsthesia, had enabled him to feel an abscess. This he had punctured and drained through the rectum. He would like to know more about the value of rectal examinations in these obscure cases.

Dr. Robert A. Murray said that he thought Dr. Syms was to be congratulated upon the recovery of his patient with septic peritonitis, for certainly it was exceedingly rare for such cases to terminate so happily. In his experience appendicitis had occurred in three different classes. The first class comprised those in which there had been perforation, but strict limitation of the abscess. In these cases there might be little or no elevation of temperature, and yet the character of the pulse and the aspect of the patient should lead the careful physician to perceive the danger. In the second class there was a history of previous rupture. (The patient had recovered from its immediate effect.) Here an operation was always demanded, and, if not done, the patient would sooner or later succumb to peritonitis from another rupture. In the third class there were perforation, general peritonitis, and marked distention, so great, indeed, that some surgeons refused to operate, as a fatal result ensued no matter what method of drainage was adopted. In determining the time to operate in any case of appendicitis the vital point was to decide whether there had been a rupture or only an inflammation around the appendix. The history of severe, sharp, sudden pain, followed by temporary improvement, should indicate the really dangerous nature of the case and the necessity of operation. If, however, there was only a history of aching and general tenderness, without any other more acute symptoms, resolution was likely to occur without operation. He would not only drain through the abdominal wound, but also make a drainage opening posteriorly through the flank. He had seen some very desperate cases end in recovery, chiefly, it seemed, because of this method of drainage.

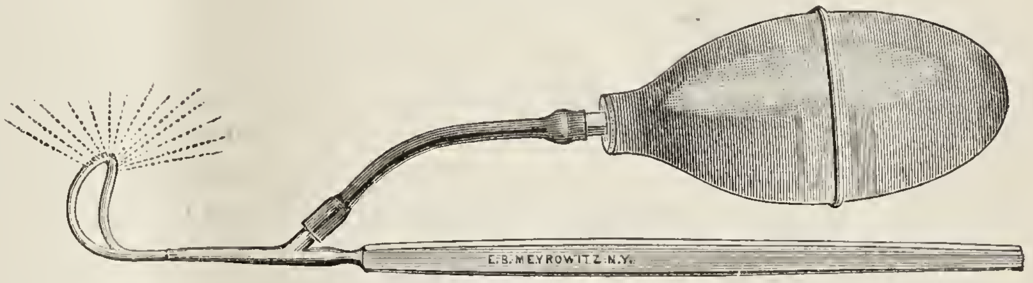
Dr. Syms said that Dr. Morris had called attention to the fact that in the cases reported in the paper the temperature had been above the average. This was true, but he wished to repeat what he had said—viz., that the temperature was absolutely no guide in determining the severity of the attack. The pulse was about the only reliable guide that we possessed, although the expression of the face also furnished valuable information to the acute and experienced observer. He was still undecided as to the exact relation of the colon bacillus to these cases. The records would seem to show that in some cases it caused little or no disturbance, whereas in others it was the cause of very grave lesions. In cases which had gone on to the formation of large abscesses, as in his first two cases, it was unwise, in his opinion, to search far for the appendix. The reason was not that the appendix was destroyed, but that it was not easily found and much manipulation was dangerous. The fourth patient had appeared to be better when he had seen him; the temperature had fallen about three degrees, and the pulse had diminished in frequency, yet this case had proved to be serious in the extreme. His experience had been that where there was sudden apparent improvement, the symptoms were entirely misleading, and should usually be interpreted as meaning rupture and abdominal sepsis.

New Inventions, etc.

A LID-ELEVATOR.

By Peter A. Callan, M. D.

In the treatment of ophthalmia, especially the gonorrhœal variety, it is difficult to keep the eyes free from pus. I have found the modified lid-elevator represented in the following cut of great service in flushing out the upper *cul-de-sac* and removing the pus from the front of the eyeball. There is nothing specially new in this modification of a lid-elevator, and no such thing is intended. The shank of the instrument, together with the bent portion which goes under the eyelid, is hollow, with small perforations along the extreme edge. A limited amount of medicated fluid can be used by means of the rubber bulb and tube which can be attached to the shank, or constant irrigation is possible by means of longer tubing and a larger receptacle. This instrument will be found serviceable in all purulent inflammations of the eyelids. As I found nothing like it on the market, I had Mr. E. B. Meyrowitz construct the instrument as illustrated in the cut.


E.B.MEYROWITZ.N.Y.

35 West Thirty-eighth Street.

Miscellany.

The Neurotic Element in Pulmonary Consumption.—In a paper read before the Section in Neurology and Medical Jurisprudence at the recent meeting of the American Medical Association Dr. Thomas J. Mays, of Philadelphia, said that disorders of the nervous system played a prominent part in the production of pulmonary consumption. As far back as in 1842 Cheneau, in a work entitled *De l'influence de la huitième paire dans la production de la phthisie*, attributed this disease directly to disorder of the pneumogastric nerves, and indirectly to an abnormal condition of the central nervous system. Dr. Mays quoted from other authors in support of the nervous theory of pulmonary consumption and said that it would be seen that this subject had interested some of the most prominent minds in the medical profession during the last fifty years. . . . At the very outset, Dr. Mays said, he would lay down the proposition that any agent or influence which had the power of disordering or interfering with the integrity of the respiratory nerves in particular, or with the nervous system in general, also had the power of producing pulmonary consumption and other forms of lung disease. In a recent canvass of the pathological literature of this subject he had found the records of over a hundred cases of phthisis in which the pneumogastric nerves or the respiratory centers had been compressed or injured or diseased in connection with syphilis, alcoholism, diphtheria, measles, diabetes, multiple neuritis, locomotor ataxia, bulbar paralysis, tumors of the pons and medulla oblongata, etc. Phthisis, he said, followed in the wake of many nerve poisons. Mercurial tremor and paralysis were well known, but Kussmaul's investigations had demonstrated the fact that the majority of those who suffered from mercurial intoxication also fell victims to pulmonary consumption. Even the vitality of the children of those who suffered from mercurial poisoning was vitiated, for it was said that scrofula, rickets, and pulmonary consumption were exceedingly prevalent in the children of those who were engaged in mercury manufacture, and that it induced abortion and stillbirths among the female employees. Lead was another metal which had the power of deteriorating the nervous system and of provoking pulmonary phthisis. Statistics showed that the disease was from two to three times as prevalent among the lead-workers in Wales as it was among the farmers living in the same locality.

Among the agents which were most potent in the production of phthisis Dr. Mays placed the abuse of alcohol, and he called the attention of those to this subject who were directly engaged in the study of inebriety. It was well known, he said, that this agent exerted a poisonous influence on the nervous system, and especially on the peripheral nerves. Very frequently the nerves did not show any marked changes, but on closer examination evidence of parenchymatous degeneration with more or less interstitial neuritis was discovered; suppression of the catamenia in women, paralysis of respiration and of deglutition, and disease of the vagi and of the lungs were also observed to be of common occurrence. Syphilis was another nerve poison which was often the unsuspected cause of pulmonary disease, the typical pathological changes of which were an abundance of interstitial connective-tissue proliferation, peribronchial induration, diffuse thickening of the lobular parenchyma, syphilitic gummata, and nodular induration or bronchopneumonia.

Whooping-cough, said Dr. Mays, was pre-eminently a specific spasmodic affection of the respiratory nerves, and various authors had ascribed it to irritation of the pneumogastric nerve. The pulmonary changes of whooping-cough were interesting, he said, because they showed the direct relationship between the disease of a nerve and that of the organ which it supplied.

Dr. Mays thought that, whatever might be the precise ætiology of influenza, it was essentially a disease of the nervous system. Its morbid anatomy was principally seen in the meninges of the brain, in the spinal cord and in the peripheral nerves. Pulmonary œdema, broncho-pneumonia, capillary bronchitis, and pleurisy were among its common sequelæ.

Cerebro-spinal meningitis, he said, was an affection which chiefly involved the medulla oblongata and its immediate connections, and it was nearly always associated with pulmonary derangement. Epilepsy was also a disease in which the medulla oblongata was involved, and it was in the latter area, said Dr. Mays, that we should have to seek for an explanation of the ultimate and long-recognized association between this disease and pulmonary disease. Echeverria, Van der Kolk, Jobert de Lambelle, Stuart Cooper, and Rostan had reported a number of cases of epilepsy associated with pulmonary disease in which the pons Varolii, the medulla oblongata, and the vagi had been disordered.

Asthma was a spasmodic affection of the pneumogastric nerve, and it was therefore of great interest in this connection to find whether this disorder developed into more serious lung disease or not. Asthmatics, said Dr. Mays, were generally supposed to be long-lived, but he did not believe there was much clinical evidence to support this belief. There were, however, some exceptional cases which were spontaneously cured in the later years of life, but in the majority of asthmatics the attacks inclined to become continuous, and it was to these that he referred; he believed that the tendency in such cases was a termination in pulmonary consumption.

With regard to hysteria, the author said that it implicated the respiratory organs in the form of accelerated breathing, dyspnœa, aphonia, laryngeal and pharyngeal paralysis, etc., and had an innate tendency to develop into pulmonary disease either in the individual or in the offspring. Professor Grasset, he said, had found that among the brothers and sisters, grandparents and uncles and aunts of forty-four hysterical patients there had been sixty who had died or suffered from phthisis.

Idiocy also, said the author, had a powerful bearing on this subject, for in 2,380 subjects of idiocy and imbecility in the Royal Albert and Darenth asylums in England it had been shown that a family history of consumption had existed in 674. Dr. Langdon Down, physician to the Earlswood Asylum for idiots, stated that the statistics of London showed that the deaths from phthisis constituted 115 in 1,000 of the general mortality. His statistics at Earlswood indicated that phthisis had been the cause of death in 398 in 1,000 of the general mortality. Dr. Down had also contributed the histories of twenty families, in each of which there had been idiocy, and among the relatives 35 had suffered from consumption. Moreover, no one was surprised to find that insanity and epilepsy created a special liability to idiocy in the offspring, but it was certainly very startling, especially in the light of its supposed bacillary origin, that consumption was more powerful in this respect than any other cause which was known to lead to this disease.

The clinical association between insanity and pulmonary consumption, said Dr. Mays, had been noticed by many authors, among whom Clouston, in his *Neuroses of Development*, made the observation that the death-rate from phthisis among the insane was four times as high as among the general population, that both diseases were very common in different members of the same family, and that heredity of phthisis might occasion insanity, and *vice versa*. The same author also stated, in his *Lectures on Mental Diseases*, that the forms of insanity commonly associated with phthisis were monomania of suspicion and melancholia. In nearly all pure cases of this kind the patients, sooner or later, died from phthisis. The most marked cases of phthisical insanity were in persons with a strong hereditary tendency to both insanity and phthisis or to the neuroses. It was surprising how often both diseases occurred in different members of the same family. The constitutional weakness which tended to end in insanity was akin to that which tended to end in phthisis.

In the *Neurologisches Centralblatt* for 1890, said Dr. Mays, Dr. Bianchi had described a pneumonia which frequently occurred in paralytics, which differed clinically and anatomically from croupous pneumonia. The temperature was usually low; cough and expectoration were sometimes absent; the respiratory movements were superficial, weak, and slow; and the affected lung usually remained in a hepatized condition. Frequently there existed larger or smaller gangrenous foci, and nearly always, if the case was of long standing, a puriform infiltration of the alveoli and bronchi. All these manifestations simulated those of pneumonia which he had produced in rabbits and dogs by section and compression of the vagi. In a number of paralytics who had died of pneumonia he had been able to trace a primary degenerative atrophy of the vagi, and hence he believed that these pneumonias were dependent on vagus degeneration.

The subject, said Dr. Mays, was one of vast proportions, and it required a great deal of time to inquire whether the symptomatic and the therapeutic evidence was not equally favorable to the neurotic theory of phthisis as that which came from the pathological side of the question. Did not, he asked, the weakness, the easy fatigue, the restless sleep, the extreme nervousness which was present in many cases, the dyspnœa, the hoarseness and aphonia, the thoracic pain, etc., indicate that the principal nature of phthisis was one of nervous exhaustion? And, therapeutically, was it not true that we got the best results from those measures and agents which proved to be the most efficient in the treatment of nervous diseases? And were not these rest, nutritious food, strychnine, electricity, hypophosphites, cod-liver oil, phenacetine, capsicum, quinine, and remedies which appealed to and influenced the nervous system?

White's Operation for Hypertrophied Prostate.—In a letter to the editor of the *Medical News*, Dr. J. William White, of Philadelphia, says:

"Dr. Belfield, in the *Journal of the American Medical Association* for March 9, 1895, and Dr. Bangs, in the *Medical Record* for April 6, 1895, published, under the heading Warning against Castration for Prostatic Enlargement, communications which, while they express some views with which I am in entire accord, contain, on the other hand, statements that hardly seem justified by the facts now before the profession.

"No one could deprecate more than I the indiscriminate performance of the operation. I suggested it with great caution, laying before the American Surgical Association the line of thought and the experimental work that seemed to me to give the idea scientific standing. More recently I wrote (*British Medical Journal*, January 5, 1895; *Medical News*, December 22, 1894) that while the evidence then existing obviously and amply justified the original suggestion, I desired to call attention to the fact that I had not made it without hesitation. I added that, 'having observed with disapprobation the undiscriminating assaults of some extremists upon the urethra, the tubes, and the ovaries, and more recently upon the appendix, I did not want to be responsible for a similar attack upon the testicles,' and that I knew that 'the step from experiment to operation is and should be a long one, and felt the responsibility involved in proposing a new operation, and especially one of this character—easy of performance, with a low mortality, and intended for the relief of a condition of enormous frequency.'

"I am still most desirous of having the operation confined within its proper limits, and to this extent am in sympathy with the gentleman mentioned.

"But when Dr. Belfield says that while it is admitted that 'castration may cause atrophy of glands, subsidence of œdema, and relief of distress, but that it will not reduce the hypertrophied connective tissue is *a priori* probable,' and Dr. Bangs writes that 'a theoretical operation, based upon observations upon dogs and eunuchs, in whom physiological atrophy of the prostate is said to be induced by the abrogation of its sexual function, can not reasonably be applied with the expectation of getting the same results in elderly men in whose prostates hyperplasia has already taken place,' and reiterates that the operation 'is based on theory alone,' they seem to me to ignore existing and conclusive evidence. This is now complete in every particular as regards the effect of bilateral castration on the majority of hypertrophied prostates. The experimental and theoretical stage has long since been passed. I have in my possession sections of a prostate taken from a patient that died after, but not because of, the operation, which show clearly that it *does* reduce the entire gland, and that the hypertrophied connective tissue shrinks and dwindles after the earlier disappearance of the glandular elements. But that this assertion may not rest on my statement I would quote Mr. Joseph Griffiths, F. R. C. S., Hunterian professor of surgery and pathology in the Royal College of Surgeons, England, who has recently reported on the condition of an enlarged prostate eighteen days after double castration. He describes in detail and figures (*British Medical Journal*, March 16, 1895) the changes which had taken place, summing up as follows: 'In short, the cell elements first proliferate, and ultimately disappear, leaving a comparatively small amount of fibrous connective tissue in their place. . . . The gland, whether enlarged or normal, undergoes certain degenerative changes after removal of the testicles which lead to its conversion into a small, tough, and fibrous mass in which there are only remains of the glandular tubules and ducts.'

"As to the clinical evidence, Dr. Bangs urges that, to test the results of the operation, 'the size of the prostate should be determined by three examiners, and the examinations repeated with sufficient frequency to determine positively the size of the organ.' These conditions, which are somewhat rigid, have been complied with in all my own cases, in one of which the estimated shrinkage of the size of the prostate from that of a small orange to that of a walnut took place in a week. A half-dozen examiners confirmed this, and several hundred medical students saw the patient and learned directly from him of the concomitant and remarkable improvement in his symptoms. Dr. Lilienthal, of New York, two weeks after the publication of Dr. Bangs's letter, published the report of a case (*Medical Record*, April 20, 1895) which so completely answers all Dr. Bangs's theoretical objections as to be conclusive in itself. I may add, however, that I have now notes of similar cases to the number of nearly one hundred, in most of which all previous palliative treatment had failed, and in which the results have been equally striking. It seems to me too late to say, as Dr. Bangs does, that the relief appearing within a few hours has been too positive to be attributed to the operation itself, because 'it hardly seems rational to believe that a hyperplastic organ in which, no doubt, there has been an increase of the connective-tissue element, should diminish in size within a few hours after castration has been performed.' The facts are against him. The hyperplastic organs do diminish in size, and often in an almost incredibly short space of time.

"Both the gentlemen who have been moved to warn the profession emphasize the possibility of mistake in diagnosis, Dr. Belfield going so far as to say that 'whenever a case of real or supposed prostatic enlargement demands operative relief thi should always be an incision into the bladder.' I am quite willing to admit that there must be some doubtful cases, and that in these and in a certain proportion in which the diagnosis is certain a cystotomy will often be desirable. But it is assuming altogether too much to claim that this is 'always' proper. I have not found the great majority of cases of prostatic hypertrophy difficult of recognition nor of classification by combined rectal and instrumental exploration. But if I may be thought to be mistaken as to this and other similar questions raised by these gentlemen, it is hardly likely that Fenwick and Moullin and Griffiths in England, Bereskin in Russia, Helferich and Meyer and Haenel in Germany, Ramm in Norway, Watson and Warren in Boston, Halsted and Finney in Baltimore, McBurney and Stimson and Pilcher in New York, Andrews in Chicago, Souchon in New Orleans, Walker in Detroit, Haynes in Los Angeles, and dozens of other surgeons of more or less prominence have been wrong as to their diagnosis, or in saying that previous palliative treatment has failed, or unreliable in their descriptions of the rapid and sometimes astounding shrinking of the gland and disappearance of the subjective symptoms, even including long-standing cystitis. They are all now on record to this general effect at any rate.

"Dr. Belfield alludes to a case in which a patient with a large prostate, 'evidently inflammatory,' and severe cystitis, was found, by suprapubic incision, to have a small calculus, previously undetected. He adds: 'Prolonged vesical drainage was followed by great reduction of the prostatic enlargement and by a symptomatic cure.' He then imagines with apparent horror the status—professional and legal—of the surgeon, who might have done castration, when the calculus was subsequently discovered. This sort of argument appears to me to be misleading, as it lacks necessary detail. The age of the patient, indicating the value of the testicles from a sexual standpoint; the relation of the calculus to the enlargement of the prostate—*i. e.*, whether cause, which would be rare, or effect, which would be common; the period indicated by the word 'prolonged'; the presence or absence of a urinary fistula; and the exact condition called a 'symptomatic cure,' should all be known before any such comparison could be drawn. I mention the case because in a gentleman, aged seventy-six years, with a large prostatic hypertrophy and a secondary calculus, which had formed after a previous litholapaxy, and which lay in a deep post-prostatic pouch, I have within the last month deliberately performed castration as a primary operation. Two weeks later, the prostate having shrunken to one sixth its former bulk, the residual urine having disappeared, and the cystitis (in spite of the presence of the calculus) having almost vanished, I crushed and evacuated the stone. The patient was sent to me by Dr. Schum, of Huntingdon. He went home free from all symptoms.

"Dr. Belfield says, finally, that 'the claim that double castration is safer than drainage is not, in his experience, warranted, if drainage be made either by perineal urethrotomy or suprapubic incision in *deux temps;* the danger in cases that really demand operative interference is the anæsthetic, not the knife.' But drainage in most cases is only a palliative measure, and, if permanent, is a source of more or less continued danger and of great discomfort to the patient. Dr. Belfield has very properly described it under the head of Palliative Operations in an article that he has published elsewhere. It is not fair, therefore, to compare it at all with a measure that in properly selected cases is curative, and which thus challenges comparison with the various forms of prostatectomy. He might almost as well have written of the mortality of catheterism, which also gives great relief in some cases. As to the anæsthesia, as double castration can easily be performed within three minutes, it seems unlikely that any serious objection to the operation will prevail on that account. I have on several occasions completed it in a little less than three minutes before the class at the University of Pennsylvania, and without undue haste. In regard to the general question of mortality, however, I may be pardoned for quoting from a personal letter from Sir Joseph Lister, who writes me: 'I am glad to see from the cases that have been published that your remedy has proved so effectual in this most distressing class of patients. If I have any fault to find with you in speaking of the advantages of your procedure, it is that you seem to me to underrate them when you say that castration is an operation of little danger. You might, I think, have truly said that if it is performed with sufficient antiseptic precautions it is entirely free from danger. The *rapidity* of the relief afforded seems to me as remarkable as it is satisfactory. Allow me to congratulate you cordially on this valuable addition to our art.'

"My personal and professional regard for the gentlemen who have criticised the operation, and my knowledge of their sincerity of purpose, have led me to reply at such length; but I also have been actuated by a desire to have both its merits and demerits kept fairly before the profession. There is much yet to be determined in regard to it, especially as to the selection of suitable cases and as to its remote effects; but I think I may fairly claim that the existing evidence—experimental, pathological, and clinical—removes it from the region of theory and speculation, and demonstrates its applicability to a large proportion of cases of hypertrophy of the prostate.

"Dr. Bangs's statement that 'if this theory could be proved, about one man in three, after the age of fifty, ought to submit to castration in order to prevent enlargement of his prostate,' is an extension of the operative field which must be regarded as peculiarly his own. I have as yet not considered the subject from the standpoint of early prophylaxis. As the theory *is* proved, it would be interesting to know how Dr. Bangs proposes to select his cases."

The Dangers of the Electric Current.—In the *Archives d'électricité médicale expérimentales et cliniques* for March 15th there is an abstract of a report of the proceedings of the *Société de biologie* in which M. d'Arsonval remarks that in a previous communication he established the fact that the electric currents employed, whatever their intensity, caused only a condition of apparent death which was due to arrest of the heart's action, and in an accident of this kind it was sufficient to practice artificial respiration in order to resuscitate the patient. He relates the following case to prove the soundness of this opinion: A criminal, who was recently "electrocuted" in America, received a current of 4,600 volts, which was 3.000 volts more than had been used in preceding executions. In spite of the high voltage the current produced only a condition of apparent death, for on practicing artificial respiration with a pair of bellows in the trachea the victim was resuscitated. [We should like to know when and precisely where this happened.]

The conclusion, says M. d'Arsonval, that must be drawn from this fact is, that the employment of electricity for executions must be given up. It is generally believed, he says, that the alternating current is more dangerous than the continuous current. On the contrary, the accidents caused by the continuous current at the high power used by manufacturers are nearly always fatal, the cause of death being due to the electrolytic phenomena which accompany the current. The living body, in reality, is not a homogeneous conductor, and the polar action is produced not only at the points of entrance and of departure of the current, but at the surface of each different tissue crossed by the current.

M. Chauveau remarked that he had pointed out the existence and the danger of the electrolytic phenomena produced in the close connection of all the tissues during the passage of the electric current. M. Laborde related the case of a workman who had been restored to life by rhythmic tractions on the tongue at the end of an hour after having received an alternating current of 2,000 volts. M. Dastre remarked that this restoration was the rule every time when the heart or the respiration was arrested if there was no destructive organic lesion, whatever might be, for that matter, the causes of this suspension of the cardiac or respiratory functions.

M. Chauveau remarked that there was, however, an important distinction to be made, in view of the possibility of resuscitation, between subjects in a state of syncope and those in a state of asphyxia. The first might be restored at the end of a few hours; the latter, on the contrary, at the end of a comparatively short time, not more than a few minutes, were refractory to all attempts at resuscitation.

Dislocation of the Head of the Humerus complicated with Impacted Fracture of its Anatomical Neck.—At a recent meeting of the Philadelphia Academy of Surgery Dr. John B. Roberts reported a case as follows:

"A boy, nine years old, was brought to my clinic at the Women's Hospital on February 22, 1895, by Dr. Marie K. Formad on account of an injury to his left shoulder. About a week before Dr. Formad saw the boy professionally, and ten days before I had an opportunity to examine him, he had fallen at school and struck the shoulder against a wall.

"He had been brought to the hospital two days before I saw him, and Dr. Anna M. Fullerton, with Dr. Formad, examined him under ether, and reduced what seemed to be subcoracoid dislocation of the head of the bone. Both of these physicians were struck by the flattened appearance of the deltoid region, and say that the bone distinctly snapped into place during the manipulations which they made. They could subsequently put the boy's hand on his head and on the opposite shoulder. These positions could not be given the bone before etherization and reduction of the dislocation. The shoulder had still, however, an unusual appearance, notwithstanding the reposition of the luxated bone. The case was accordingly referred to me.

"When I saw him the acromion was unduly prominent. The left humerus was apparently half an inch shorter than the right, and the width of the upper end was markedly increased. The greater tuberosity, which could be easily felt, for the boy was not very fat, rotated when the lower end of the humerus was grasped and given a rotary motion. The head of the bone, which I could feel in its normal position, also moved during this manipulation. I felt at times a grating like that of crepitus, but this did not seem to pertain to the humerus so much as to the scapula. It seemed to be in the posterior portion of the joint; but I could make out no fracture of the neck of the scapula, as was suggested by the situation of the grating.

"The boy could voluntarily move his arm upward and outward without pain, though these movements were made in a guarded and careful manner, as though he feared suffering. The movements were not very extensive, but showed that the continuity of the humerus was maintained.

"Being unable to make a diagnosis without giving pain I etherized him. I then found that rotation of the lower end of the humerus caused similar motion of the head of the bone, but that if I held the head still with my left hand I could, by means of my right hand holding the shaft of the humerus, cause a bending or rocking motion between the head and the shaft. This movement was between the greater tuberosity and the head. It was apparent that there existed a connection between the shaft and the tuberosity, and also between these portions of the bone and the head; but an antero-posterior rocking motion could be made between the shaft and tuberosity on the one hand and the head on the other. There was no fracture of the neck of the scapula and no dislocation of the head of the humerus.

"Three conditions were suggested by these symptoms: First, a firmly impacted fracture at or near the anatomical neck, which allowed the whole bone to move when rotary motions were given to the shaft of the humerus, but which permitted bending between the head and greater tuberosity. Second, a partial or green-stick fracture at or near the anatomical neck. Third, an epiphyseal separation of the head with impaction. The fracture, whether impacted or of the green-stick variety, had permitted the dislocation, which also existed originally, to be reduced under ether by Dr. Fullerton and Dr. Formad. The rigidity maintained at the seat of fracture had been sufficient to permit the head of the bone to be put in place by leverage obtained from the shaft of the bone. The manipulations needed to reduce the luxation were not forcibly made, and the replacement was easily accomplished. Hence, the fracture could not have been produced by these efforts.

"The widening of the upper end of the humerus, which was very conspicuous, and the apparent shortening of the humerus, inclines me to the theory of impacted fracture. The age of the child suggested, however, a green-stick fracture as a possibility. By forcible manipulation I obtained complete separation of the fragments. The sensation imparted to my hands was that caused by disentangling or breaking apart two pieces of bone. Subsequently the arm assumed the usual appearance of a fracture of the humerus close to the shoulder joint. The crepitus originally felt in the vicinity of the scapula was probably due to the rough edges of the firmly impacted fracture rubbing against the border of the glenoid cavity. Having become convinced of the diagnosis, and having restored the proper conformation of the shoulder, I dressed the injury in the usual way—with a small pad in the axilla and a bandage to hold the arm to the thorax, which acted as an internal splint. . . . Union took place promptly. When I last saw the boy, about eight weeks after my first examination, there was a little unnatural prominence of the acromion, and the head of the humerus seemed to project forward a little more than usual. These appearances may have been due to atrophy of the deltoid. The movements of the joint were perfect."

The American Neurological Association will hold its twenty-first annual meeting in Boston on June 5th, 6th, and 7th. The preliminary programme includes the following papers: Insanity and Phthisis, their Concurrence, Coexistence, and Transmutation, by Dr. H. A. Tomlinson, of St. Peter; The Ætiology of Obstetrical Paralysis, by Dr. George L. Walton, of Boston; A Lantern Exhibition of Photo-micrographs of Nervous Histology; Golgi Stains, by Dr. M. Allen Starr, of New York; A Contribution to the Pathology and Morbid Anatomy of Amyotrophic Lateral Sclerosis, by Dr. Joseph Collins, of New York; The Conservative Value of the Play Impulse, by Dr. Irving C. Rosse, of Washington; Must Acute Paranoia be admitted into our Nomenclature? by Dr. William Noyes, of Foxboro; Automimesis, by Dr. Smith Baker, of Utica; A Case of Hereditary Chorea, with Autopsy, by Dr. Charles L. Dana, of New York; Cases of Brain Tumor—A Case of Total Hysterical Anæsthesia in the Male, by Dr. George J. Preston, of Baltimore; Telegrapher's Paralysis, by Dr. James Hendrie Lloyd, of Philadelphia; The Diagnosis of Hæmorrhagic Cerebral Pachymeningitis, by Dr. William N. Bullard, of Boston; The Association of Tabes and Paralytic Dementia, by Dr. Theodore Diller, of Pittsburgh; The Localization of Small Gross Lesions in the Pons and Præoblongata, by Dr. Charles K. Mills, of Philadelphia; A Report of a Case of Peroneal Muscular Atrophy, with Autopsy, by Dr. William C. Krauss, of Buffalo; The Home Treatment of Insanity, by Dr. H. M. Bannister, of Chicago; The Criminal Insane Abroad, by Dr. C. Eugene Riggs, of St. Paul; A Report of a Case of Tumor of the Cerebellum, with Autopsy—Operation by Dr. John F. Erdmann, by Dr. E. D. Fisher, of New York; Hyperostosis Cranii (Megalocephaly), with Illustrations, by Dr. James J. Putnam, of Boston; The Pulse in Insanity—Original Study of Cases, by Dr. Theodore H. Kellogg, of Willard; A Report of a Case of Multiple Neuritis in an Infant, by Dr. Græme M. Hammond, of New York; Two Cases of Railway Spine, with Autopsy, by Dr. F. X. Dercum, of Philadelphia; Fissural Studies: (*a*) Two Philosophers, (*b*) An Apparent Duplication of the Central Fissures, by Dr. Burt G. Wilder, of Ithaca; Pseudo-neurasthenia, by Dr. Morton Prince, of Boston; Hysterical Amblyopia and Amaurosis—A Report of Five Cases Treated by Hypnotism, by Dr. J. Arthur Booth, of New York; Exhibition of the Brain of a Chimpanzee, by Dr. Thomas Dwight, of Boston; and The Part of Inhibition in the Physiology of Respiration, by Dr. William T. Porter, of Boston.

Are there Seasons Unfavorable for Surgical Operations?—In the *Medical Record* for April 27th there is an article on this subject by Dr. Robert Abbe, who remarks that this is a question often asked of the surgeon by patients, and it is one, he says, that is worthy of consideration. There are many operations, not urgent, which have been followed by grave consequences and sometimes death, and the question has been asked, Would it have been wiser to wait for a better season?

The public mind, says Dr. Abbe, has had the idea that there is a difference in relative danger at varying seasons, and we have all been conscious of extended periods of depressing weather and heavy, gloomy days when we work with difficulty. The public also knows that at certain hours of the night the vital powers are at an ebb; that there are seasons when sudden deaths seem to prevail; that epidemics of grippe, etc., come at times and close our schools—when the general health seems to be below par. Naturally, then, the inference is, that if patients are to be operated on, they will choose the best season.

Seasons, says the author, undoubtedly act with varying power on different persons. The highest state of the functions of the body—respiratory, muscular, etc.—is in the spring, through summer, and toward autumn. After that the carbonic-acid vapor exhaled, the volume of air inspired, etc., all lessen, autumn representing the minimum of normal functional activity, as is shown by most careful physiological experiments. In the spring the system is alive to changes, and it is reasonable to say that an increased reparative power may be looked for. This is seen in every chronic case in the hospitals during the spring and early summer. Dr. Abbe thinks that the improvement may be due somewhat to the admission of air to the rooms and to the increase in sunshine. Nevertheless, he says, the spring offers a helpful power to the surgeon, not only in the recuperative physical action of the body, but in the increased mental attitude of convalescents who enjoy the sunshine.

Traumatic fever does not seem to be more intense in hot weather, and the septic febrile exacerbations so constantly regarded as malarial at one time, and for which quinine is so often given when the knife should be used to evacuate hidden pus, has been spoken of often as to be looked for in the autumn season. There is often a tendency, says Dr. Abbe, for work to run in groups. For example, four or six cases of furunculosis will occur during a certain month of the year, then months will pass without another case occurring. The same experience applies to diffuse phlegmonous inflammations, carbuncles, suppurative ear troubles, purulent tonsillar inflammation, etc. There are months when these diseases prevail; not the hot months, although we should expect bacterial growth of all sorts to be favored by heat; they seem to be rather the winter and spring months, when, from bad housing or epidemic aerial influence, the season seems to breed disease. These cause much surgical work, but that they complicate the cases of impending operation, says Dr. Abbe, is entirely another question. If, during the months of January and February, the cases of appendicitis of a virulent type prevail and pneumonia, grippe, diphtheria, and erysipelas are more numerous, does it, he asks, call for a check of surgical work in cases that can be postponed, such, for example, as laparotomies, operations for lipomata, hæmorrhoids, or calculus, urethral work, ovariotomy, etc.? That can be answered by considering the death list in surgical cases at different seasons, and, so far as the author can discover from his own work, he finds that the best results run uniformly through these months.

With regard to pneumonia complicating surgical work, Dr. Abbe says that his experience has been quite negative. This complication as a sequel of operation is now recognized, he says, as due to preventable causes in most cases, and is seen more in certain classes of work where inhalation of impure or septic particles has given rise to septic pneumonia. In the general surgical wards of the hospitals the author's experience is that pneumonia is extremely rare, since he has provided for ample warmth and protection for the patient during and after operation and for the preventable septic infection from vomit and inhalation by washing out the stomachs of hernia patients and the liberal use of iodoform packing and boric acid in the mouth, the throat, and the nose. Dr. Abbe feels that pneumonia, or so-called pneumonia, after surgical work, which has been sometimes considered a seasonable complication, is really preventable, and that even when there is a prevailing epidemic a given number of surgical patients are even less likely to suffer from it than a corresponding number of the community at large, because they are protected by being in equable surroundings.

The argument, then, says the author, for both children and adults is in favor of ignoring the season, for the experience of the surgeons of to-day will show that, as an illustration of traumatism, the conduct and results of fractured bones are entirely independent of the season, and for all practical purposes any properly conducted surgical operation, with aseptic work, and the wound covered in by aseptic dressings, is equivalent to a subcutaneous wound, which proceeds as harmlessly as a simple fracture. We may feel, then, says Dr. Abbe, that we are in a position to say to a patient, "It is as well to do it now as at any other time." For his part, he says it is a satisfaction to dispel the delusion that this might not be true, concerning which he has heretofore had a slight doubt.

The Medical Society of the State of North Carolina.—The forty-second annual meeting was held at Goldsboro on May 14th, 15th, and 16th, under the presidency of Dr. John H. Tucker, of Henderson. The programme included the following papers: Diphtheria Antitoxine, by Dr. Albert Anderson; Non-penetrating Abdominal Injuries, by Dr. Robert S. Young, of Concord; The Anatomy of Hernia, with Reference to Macewen's Operation, by Dr. R. H. Whitehead, of Chapel Hill; Anæsthesia, by Dr. J. G. Blount, of Washington; A New Method of applying Plaster-of-Paris Dressing in Fractures, by Dr. H. A.

Royster, of Raleigh; A Report of a Case of Chronic Purulent Otitis Media, by Dr. S. J. Montague, of Winston; Surgical Technique, by Dr. J. W. Long, of Richmand, Va.; Cases of Hypertrophic Nasal Catarrh treated by Electrolysis, by Dr. Francis Duffy, of Newbern; Corneal Ulcers, by W. H. Wakefield, of Charlotte; A Case of Multiple Perforation of the Small Intestine, by Dr. R. H. Whitehead, of Chapel Hill; The Abuse of Alcoholic Stimulants in Practice, by Dr. A. A. Kent, of Leader; Needed Legislation and a Practical Enforcement of Existing Laws, by Dr. James A. Burroughs, of Asheville; Abortion and its Management, by Dr. Joshua Taylor, of Washington; Puerperal Septic Infection—its Prophylaxis and Treatment through the Uterus, by Dr. F. H. Russell, of Wilmington; The Rational Treatment of Puerperal Eclampsia, by Dr. T. S. McMullan, of Hertford; An Obstetric Resource and Necessity, by Dr. Jonathan R. Irwin, of Charlotte; The Uncontrollable Vomiting of Pregnancy, by Dr. W. S. Anderson; Enpiricism, by Dr. R. H. Stancell, of Margarettsville; The Cradle, by Dr. W. P. Mercer, of Elm City; Pneumonitis in Childhood, by Dr. Thomas Riddick, of Woodville; Erysipelas, by Dr. D. J. Hill, of Germanton; Scarlet Fever, by Dr. Thomas R. Marshall; Cholera Infantum, by Dr. W. E. Fitch, of Durham; Dietetic Regimen in the Treatment of Disease, by Dr. R. J. Grimes, of Bethel; Whooping-cough, by Dr. F. Homer Arthur, of Harrell's Store; The Care of the Insane, and the Treatment and Prognosis of Insanity, by Dr. P. L. Murphy, of Morganton; The Therapeutic Use of Tobacco in Paræsthesia, with Report of a Case of Pruritus Hiemalis, by Dr. S. J. Montague, of Winston; Hæmorrhagic Fever, by Dr. P. B. Loftin, of Grifton; Remarks on the Treatment of Typhoid Fever, by Dr. E. F. Strickland, of Bethania; The Treatment of Diphtheria, by Dr. R. A. Patterson; Phthisis Pulmonalis, by Dr. A. B. Pierce.

The Medical Society of the State of Pennsylvania.—The forty-fifth annual meeting will be held at Chambersburgh on May 21st, 22d, 23d, and 24th, under the presidency of Dr. John B. Roberts, of Philadelphia. The programme includes the following papers:

Address in Medicine, by Dr. I. C. Gable, of New York; The Sequelæ of Typhoid Fever, by Dr. T. D. Dunn, of West Chester; The Treatment of Malignant Tumors by the Toxines of Erysipelas, by Dr. John B. Roberts, of Philadelphia; The Treatment of Typhoid Fever, by Dr. James Tyson, of Philadelphia; The Prophylaxis of Pelvic Inflammations in Women, by Dr. J. M. Baldy, of Philadelphia; Tuberculosis, by Dr. John M. Batten, of Pittsburgh; The Treatment of Fistula in Ano by Lange's Method, or Immediate Suture of the Tract, by Dr. Lewis H. Adler, Jr., of Philadelphia; Ocular Affections Associated with Lithæmia, by Dr. Samuel D. Risley, of Philadelphia; Experience in the Treatment of Diphtheria during Thirty-four Years of Practice, by Dr. William S. Stewart, of Philadelphia; Acute and Chronic Cystitis, by Dr. J. W. Roop, of Harrisburg; The Treatment of Nævus, by Dr. H. R. Wharton, of Philadelphia; A Report of One Hundred and Twenty-five Cases of Hernia in which the Radical Cure was Performed, by Dr. Ernest Laplace, of Philadelphia; Ten Minutes in Medical Electricity, by Dr. George S. Hull, of Chambersburgh; The Present Status of the Sanitary Movement for the Adoption of the Individual Communion Cup, by Dr. H. S. Anders, of Philadelphia; An Address in Hygiene, by Dr. Hildegarde H. Longsdorf, of Carlisle; The Prevention and Cure of Tubo-ovarian Inflammation, by Dr. G. Betton Massey, of Philadelphia; Movable Kidney, by Dr. Charles P. Noble, of Philadelphia; Oxygen Gas under High Pressure *vs.* Compressed Air for Spraying and Nebulizing in Diseases of the Chest, Throat, Nose, and Ear, by Dr. A. B. Kirkpatrick, of Philadelphia; The Necessity for a State System of Registration of Vital Statistics in Pennsylvania, by Dr. Benjamin Lee, of Philadelphia; Carcinoma of the Uterus, by Dr. Thomas S. Cullen, of Baltimore; An Address in Surgery, by Dr. C. L. Stevens, of Athens; Late Syphilitic Lesions, by Dr. Edward Martin, of Philadelphia; Rupture of the Tendon of the Quadriceps Extensor Femoris, by Dr. J. J. Buchanan, of Pittsburgh; Mental Influence in the Treatment of Disease, by Dr. Theodore Diller, of Pittsburgh; Ophthalmia Neonatorum, by Dr. Joseph E. Willetts, of Pittsburgh; The Treatment of Typhoid Fever by Guaiacol, by Dr. A. P. Hull, of Montgomery Station; When should Vaginal Incision be Preferred to Abdominal in the Treatment of Pelvic Disease? by Dr. E. E. Montgomery, of Philadelphia; Pharmacy in the Medical Profession, by Dr. S. S. Good, of Meyersdale; Deaf mutes—Can anything be Accomplished by Treatment? by Dr. Louis J. Lautenbach, of Philadelphia; Microbes and Molds, by Dr. William T. W. Dickeson, of Media; A Contribution to the Clinical Study of Typhoid Fever, by Dr. Murray Galt Motter, of Lancaster; Retroflexion of the Uterus when Chronic is Incurable except by the Application of Surgical Methods, by Dr. B. F. Baer, of Philadelphia; The Treatment of Earache, by Dr. L. W. Moyer, of East Mauch Chunk; Practical Medicine, by Dr. J. C. Channell, of Wrightsville; an address in Obstetrics, by Dr. W. B. Ulrich, of Chester; The Necessity for the Advertisement and Isolation of Certain Contagious and Infectious Diseases, by Dr. F. Le Moyne, of Pittsburgh; Fat in Pulmonary Consumption, by Dr. Thomas J. Mays, of Philadelphia; Massage in Surgery, by Dr. James K. Young, of Philadelphia; Ligation of Arteries in the Treatment of Malignant Disease, by Dr. John H. Packard, of Philadelphia; Carcinoma of the Uterus, by Dr. I. N. Snively, of Waynesboro; Heredity, by Dr. J. K. Garver, of Harrisburgh; Epidemic Diseases, by Dr. B. L. Kerchner, of Dalmatia; The Management of Cases of Typhoid Fever, by Dr. H. G. McCormick, of Williamsport; A Case of Pyelitis in a Boy of Seven Years, by Dr. J. P. Crozer Griffith, of Philadelphia; Medical Green Goods, by Dr. John B. Donaldson, of Canonsburg; Labor at Full Term Complicated by Typhoid Fever, by Dr. William M. Findley, of Altoona; Empyema of the Mastoid and its Relation to Acute Aural Disease, by Dr. S. MacCuen Smith, of Philadelphia; an address on The Present Attitude of Physicians and Modern Medicine toward Homœopathy, by the president; an address on Mental Disorders, by Dr. F. X. Dercum, of Philadelphia; The Diagnosis of Gastric Lesions by Modern Methods, by Dr. S. Solis-Cohen, of Philadelphia; Typhoid Fever, by Dr. George G. Groff, of Lewisburgh; Undue Reliance Upon Temperature Records, by Dr. J. Chris Lange, of Pittsburgh; A Report of a Series of Cases of Laryngeal Diphtheria, Treated by Antitoxine, with and without Intubation, by Dr. Edwin Rosenthal, of Philadelphia; Another Word on Adenoid Growths of the Pharynx, by Dr. Harrison Allen, of Philadelphia; The Value of an Alcoholic-vapor Bath in the Treatment of Suppression of Urine and Uræmia, by Dr. F. S. Nevling, of Karthaus; Forty Years' Experience with Veratrum Viride, by Dr. J. L. Ziegler, of Mount Joy; A Clinical Study of the Relation of Accommodation to Convergence, by Dr. Howard F. Hansell, of Philadelphia; Nerve-muscle Atony in Girls, by Dr. Kate D. Miesse, of Easton; Aconitine in Neuralgia, by Dr. J. Newton Hunsberger, of Skippack; The Emotional Brain, by Dr. Benjamin Lee, of Philadelphia; The Rational Treatment of Fracture of the Femur near the Hip Joint in Aged Persons, by Dr. E. V. Swing, of Coatesville; A Contribution to the Study of Deaf-mutism, by Dr. Arthur Ames Bliss, of Philadelphia; A Report on Hydrophobia, by Dr. Charles W. Dulles, of Philadelphia; an address in Otology, by Dr. L. H. Taylor, of Wilkesbarre; Irregular Forms of Enteric Fever, by Dr. J. C. Wilson, of Philadelphia; The Treatment of Tertiary Syphilis, by Dr. Orville Horwitz, of Philadelphia; Bacteriological Examinations in Medicine or Surgery, by Dr. Joseph McFarland, of Philadelphia; The Diagnosis and Treatment of Acute Intestinal Obstruction, by Dr. James M. Barton, of Philadelphia; The Relief of Some Cases of Functional Nerve Troubles by Curing Eye-strain, by Dr. J. Saylor Brown, of Williamsport; Faith and Therapeutics, by Dr. H. G. Chritzman, of Welsh Run; Vaccine Virus, by Dr. H. M. Alexander of Marietta; Whither are we Drifting? by Dr. H. A. Arnold, of Ardmore; The Treatment of Typhoid Fever, by Dr. H. A. Mowery, of Marietta; Phthisis Pulmonalis, its Prevention and Cure, by Dr. A. C. Chamberlain, of Brooklyn; The Remote and Immediate Causes of Epidemic Influenza, by Dr. W. J. K. Kline, of Greensburgh; Auto-intoxication, with Special Reference to Certain Diseases, by Dr. A. Enfield, of Bedford; Hydrocephalus, with a Case Treated and Cured by Tapping, by Dr. H. Garey, of Berlin; and Antero-fixation of the Uterus, by Dr. George Erety Shoemaker, of Philadelphia.

The New York Academy of Medicine.—At the last regular meeting, on Thursday evening, the 16th inst., a paper entitled A Clinical and Bacteriological Study of the Gonococcus in the Male Urethra and in the Vulvo-vaginal Tract of Children was to be read by Dr. Henry Hinman.

At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 20th inst., Dr. W. B. Johnson will read a paper entitled Suggestions regarding Legislation for the Prevention of Blindness, and Dr. H. H. Seabrook one on Accommodation in Old People. Cases and specimens will be presented.

At the next meeting of the Section in General Medicine, on Tuesday evening, the 21st inst., a paper entitled A Further Report on Achylia Gastrica will be read by Dr. Morris Manges, and one on The Flechsig Method in the Treatment of Insane Epileptics by Dr. L. Pierce Clark. Cases will be presented.

At the next meeting of the Section in Laryngology and Rhinology, on Wednesday evening, the 22d inst., Dr. W. F. Chappell will read a paper on Xerostomia, or Dry Mouth. There will be a presentation of patients, instruments, and apparatus.

At the next meeting of the Section in Obstetrics and Gynæcology, on Thursday evening, the 23d inst., the following papers will be read: Pregnancy and Labor complicated by Cardiac Disease, by Dr. Julius Rosenberg; A Contribution to the Study of the Nature, Cause, and Treatment of Suspended Animation in the Newborn, by Dr. J. D. Bissell. Cases will be reported and specimens and instruments presented.

At the next meeting of the Section in Neurology, on Friday evening, the 24th inst., the following papers will be read: On the Ætiology of Vertigo, by Dr. Arthur A. Boyer; The Differential Diagnosis between Localized Neuritis, Rheumatism, and such other conditions as give Similar Symptoms, by Dr. L. F. Bishop. Cases will be presented.

A Warning to Stamp Collectors.—At the present day a man of any position in the medical world can scarcely be considered to have fully justified his existence till he has discovered a new disease, or at least some previously unsuspected source of danger to health. Dr. Unna, of Hamburg, may therefore be looked upon as doubly fortunate, for besides enriching nosology with more than one new disease, he has now made a considerable section of the human race still further his debtors by showing them that their favorite "hobby" has the added spice of danger required to make it completely delightful. Stamp collecting might at first sight appear to be a perfectly harmless mania, but here too, as in every other human pleasure or pursuit, it turns out that *latet anguis in herba*. There is a disgusting disease of the hair known as *piedra* (stone), and hitherto considered to be peculiar to Colombia in South America, where it is comparatively common among the fair sex. Men also suffer, though to a less extent, and chiefly in their beards. Black gritty particles form on the hair shafts; they are so hard that they rattle like pebbles (hence the name) when the comb is used. An unpleasant feature of the affection is a peculiar acid smell. The concretions have been found to consist of the closely packed spores of a special fungus. The disease is supposed to be connected with a mucilaginous substance which is greatly in favor with the native beauties of Colombia for anointing their dark tresses. Dr. Unna has satisfied himself that this interesting complaint can be conveyed to Europe by a somewhat unexpected channel. He has recently had under his care a professional brother whose beard was unquestionably affected with *piedra*. The patient had never been near Colombia, and the question was how could he have got the disease? It turned out, however, that he often received letters from Colombia, and he was in the habit of detaching the stamps by soaking them in water. Dr. Unna conjectures that he may have inoculated himself with the fungus which causes the disease while fiddling with his beard with fingers still wet with the water in which he had soaked the stamps. The theory appears to involve the hypothesis that the "mucilaginous substance" which is suspected of breeding the disease is used in Colombia for gumming stamps; but, at any rate, the case should be a warning to stamp collectors as suggesting the possibility of the importation of the germs of various inoculable diseases from their native haunts.—*British Medical Journal.*

Bellevue Hospital Medical College.—At the annual meeting of the faculty held on May 7th the following changes were made: The title of the chair held by Dr. Joseph D. Bryant was changed to that of anatomy and operative and clinical surgery; Dr. Bryant to continue his surgical clinic on Saturdays and to give two lectures a week on anatomy and one lecture a week on certain subjects in operative surgery. Dr. George D. Stewart resigned as one of the demonstrators of anatomy and was appointed to give one lecture a week as lecturer adjunct on anatomy, under the direction of Professor Bryant. Dr. Stewart was also nominated an assistant visiting surgeon to Bellevue Hospital. Dr. H. M. Silver resigned as demonstrator of anatomy. Dr. John F. Erdmann was appointed professor of practical anatomy and put in charge of the dissecting room. Dr. Winfield Ayers, Dr. William G. Lusk, and Dr. John J. Rothwell were appointed assistant demonstrators of anatomy. Dr. Reginald H. Sayre was appointed lecturer adjunct on orthopædic surgery. Dr. Austin Flint, Jr., was elected professor of obstetrics. Dr. William H. Park was appointed instructor in contagious diseases.

The Erie County Hospital.—An open competitive examination of candidates for appointment as house physicians (three vacancies to be filled on June 1st) will be held at the hospital, in Buffalo, on May 28th at 3.30 P. M. Applications should be addressed to Dr. E. J. Gilray, medical superintendent of the hospital.

The Society of Medical Jurisprudence.—The special order at the last regular meeting, on Monday evening, the 13th inst., was a paper by Dr. L. Duncan Bulkley, entitled A Plea for the Legal Control of Syphilis, based upon its Frequency in the Innocent.

The Richmond Academy of Medicine and Surgery.—At the last regular meeting, on Tuesday evening, the 14th inst., the special order was a paper by Dr. T. J. Moore entitled Osteo-arthritis.

Lectures and Addresses.

CONCERNING THE AIMS AND METHODS OF HOSPITAL ALUMNI SOCIETIES.*

By ADOLPH RUPP, M. D.,
PRESIDENT OF THE CHARITY HOSPITAL ALUMNI SOCIETY, NEW YORK.

If all were true that is said and applauded at the dinners of the different hospital alumni societies, then those who have a suspicion of the imperfection of human institutions would be treated to many manifestations of sentiment that might well puzzle and confound them, although they could fall back on the authority of so sturdy and common-sense a philosopher as Samuel Johnson, who says, "In all sublunary things there is something to be wished, which we must wish in vain."

At those dinners, as you all know, the hospitals are glorified, the hospital men praise themselves and are praised by others, and the alumni societies are lauded on account of the good they do.

Certainly none of us will say that all this buoyant exhilaration is without reasonable foundation. Considering the purity of feeling and the joyous swing of thought and sentiment which prevail on these occasions, all seems well timed and placed.

Long may these annual and biennial reunions at the dinner table continue!

Other places, however, and other times justify and even invite the consideration and discussion of other thoughts and sentiments from other points of view. Then, too, where there is life, problems bearing on the aims and methods of such societies are always presenting themselves for consideration or reconsideration.

This being the last but one meeting of the season, I may be pardoned for bringing to your attention a few facts and fancies concerning our methods in the management of our society, and which I offer only in the way of suggestion. What I shall have to say may have occurred to many of you too. Indeed, some of these problems we have attempted to solve, and with more or less success. A few others have been dismissed by us after hasty and unsatisfactory discussion, as not sufficiently ripe for serious attention.

Article II of the Constitution of The Society of the Alumni of City (Charity) Hospital boldly and baldly tells us that "The object (aims) of this society shall be the advancement of medicine and surgery, and the promotion of social intercourse among its members."

No one will challenge the excellence of such aims, and none can be more consistent with self-respectful modesty. Moreover, these aims are permeated by the spirit of the old text, ever new with vigorous vitality, and therefore always true: "None of us liveth unto himself." Such are our ideals!

What are our methods by means of which we seek and hope to realize them? We have three committees to help us to realize our ideals: (1) A committee to look after the work, etc., which is to advance the science and art of medicine and surgery; (2) a committee to take care of new members; and (3) a committee to take care of all our social arrangements. Besides, we have the usual executive officers, a president and a vice-president, a secretary, and a treasurer.

But all this machinery amounts to only a little at best if the material it works for be inefficient, or lacks a sympathetic and enthusiastic co-operative spirit. Allow me to say a few words concerning the character and personnel of our regular meetings. Too often we see only the same faces and hear only the same voices; and, although all is of first-rate quality, our meetings can not under such circumstances finally become anything else than monotonous. Look at our transactions and I think you will find this to be true.

The men who have shown most interest in our doings by attendance, by the reading of papers, and participation in discussions have been those who left the hospital between the years 1875 and 1885. This is not as it ought to be. The circle is too limited. Why do the men who left the hospital prior to 1875, and those who have left since 1885, manifest so little sympathy for the doings of this society? Perhaps they do not know of our existence as they should. I would therefore suggest that the members of the committee on new members be asked to enlarge their sphere of usefulness. They might, besides passing on the credentials of candidates for membership, look around for candidates, old practitioners as well as the youngest graduates from the hospital. In doing this not altogether easy but pleasant work a number of ideas might suggest themselves to their business faculties which possibly would prove fruitful for the good name of our society and its better operation in realizing the ideals we have made our object.

Another suggestion that I would make refers to the awkward way in which our guests have often been treated. It might be well for our entertainment committee to retire with our guests when our executive sessions are to be of such a nature that absolute secrecy must be the order. We have no right to make our guests feel out of place. They should be made to feel that they are our friends and equals.

And what can the rank and file of the society do in the way of seconding the efforts of the science committee toward advancing the science and art of medicine and surgery, especially so in ways that will make our meetings worth the time of attending them? "Time," says Franklin, "is the stuff that life is made of"—and we medical men should be careful not to waste that which it is our function to rescue and prolong.

An alumnus of our hospital, my senior by about ten years, once asked me, "What does your society accomplish?" He also intimated that we could do him no good, that whatever time he might give to our society would be lost, and that his time was gaining in value as he was growing older. I could not reply to this argument, because the man, it seemed to me, was as uncomplimentary to himself as to us. He could not appreciate our ideals as we have striven to do, and yet we want and need just such men who know how to appreciate their time. If we can not teach them anything, they can teach us a good deal along many lines of medical science and art. And here excuse me for bringing in a few words on this head from Sir Thomas Browne: "There are infirmities not only of the body but of the soul and fortunes, which do require the merciful hand of our abilities. I can not condemn a man for ignorance, but behold him with as much pity as I do Lazarus. It is no greater charity to clothe his body than apparel the nakedness of his soul. It is an honorable object to see the reasons of other men wear our liveries, and their borrowed understandings do homage to the bounty of ours."

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* Read at the March, 1895, meeting of the Society of the Alumni of Charity Hospital.

We are practical men, and as such we have interests in common which reflect on us individually. We also have responsibilities to take care of; and we dare not shirk them if we would be live and earnest men and good citizens.

Along these lines our doings here can be a gain to ourselves, and indirectly beneficial to our professional *confrères* and the public at large.

A German professor and wit of the last century says: "People amuse themselves with uncertainties and call it discussion." There is as much truth in that hit to-day as there was one hundred years ago. But if we take care not to allow inane vanities to run away with our duties our discussions will contain something better than straw-stuffed amusement; and though our reportings, readings, and discussions may not send science forward with leaps and bounds, our doings, we may hope, will help us in keeping our senses open and "free from the mists of prejudice and the paralysis of cant." This free and open sense is on a level with originality and discovery, and only comes after them in importance.

Egyptian civilization shut out new ideas and facts to save its individuality, and died. Greek culture finally assumed a too ardent hastiness for the discussion of something new, forgetting what it had acquired and done in bygone centuries, and the glories of Greece crumbled into forgetfulness and a name, because the Greeks had shut their senses against what had at other times made them great among nations. Our culture individually is only dense and prejudiced if we chase after only what is new and shut our minds against the just claims of what is old. What is true of Egypt and of Greece as great nations is psychologically true for each of us and all collectively. We must work both ways—at the new and at the old. Why were the beneficent virtues of ether left unapplied for centuries after its first discovery? (Discovered 1515 by Valerius Cordus—applied thoroughly and widely after 1845 by Morton, Jackson, and others.) Just because the general medical mind was not prepared to see and accept the powers within its reach.

On the other hand, can we not, even the youngest among us, recall new, loudly commended and recommended therapeutic measures which left many medical men and many lay people in very much the same disappointed plight in which the dog was after he lost his bone because he snapped at its exaggerated reflection in the water? Of course, all the other medical societies have these or similar aims—the advancement and diffusion of our particular branch of science, philosophy, and art. But they lack that bond of fellowship of service which is common to us and our hospital alumni societies, and which makes us a specialized group of men. We all enjoyed the rare opportunities of observation in a large hospital before beginning our careers as private practitioners. Some of us have drifted into the various specialties, some of us are physicians and others are surgeons, and only a few of us are general practitioners.

This being the case—by the judicious management of the science committee, seconded by the ready co-operation of all—we can each of us carry away more from these meetings which keep us in the swim of the great, full stream of medicine than we can from the meetings of any of the other societies, which all have special tendencies, and which are so often in their doings and tendencies like rivulets running away from the parent river.

Of course, the other societies have other uses and interests for us all which after a manner bring us in touch with the profession at large.

With one more reminder, coupled with a suggestion, I shall end my speech. By vote, at last month's meeting, the officers and standing committees are its executive committee. The powers conferred are great and may easily be abused. But the powers conferred as they are, properly and fairly worked, will facilitate and expedite all our routine business, and besides heighten and lengthen the social part of our gatherings.

The specific characteristic of the government of our society is "committee government." The offices of president and vice-president are simply and purely honorary. Our president only presides at our meetings—all the rest that he presumes to do he does by the courtesy of the committees and your acquiescence and kindness.

I would therefore suggest, on account of all this, and for the better orientation of all of us, that the names of all officers and the names of all the men serving on the various committees be printed on the reverse side of all the notice cards.

I thank you for your courteous attention and hope that we may all meet again next November.

Phlebotomy of the Hands to Prevent Abortion.—In the *Lyon médical* for April 28th there is an abstract of an article by Viscaro, which was published in *El Siglo Médico*, in which the author states that in several cases of threatening abortion he has successfully employed derivative phlebotomy as recommended by the ancient writers. He has practised it on one of the veins of the hand, without drawing more than two ounces of blood. He cites several cases in which he has rapidly obtained the cessation of symptoms of abortion and in which pregnancy has attained its normal term. This treatment, he says, should not be reserved for plethoric women only, although it is contraindicated when the patients are greatly debilitated.

Original Communications.

AN ATYPICAL CASE OF INSULAR SCLEROSIS.*

By THEODORE DILLER, M.D.,
VISITING PHYSICIAN TO ST. FRANCIS HOSPITAL, PITTSBURGH.

Nearly all authorities agree that insular sclerosis often presents great difficulties in the way of diagnosis. Too much stress is perhaps laid upon the intention tremor as a pathognomonic sign. Certainly in not a few cases this sign is absent.

The following case presents unusual difficulties in diagnosis, inasmuch as this chief symptom is absent, and the patient's condition and history naturally bring up the question of the possibility of the case being one of metallic tremors :

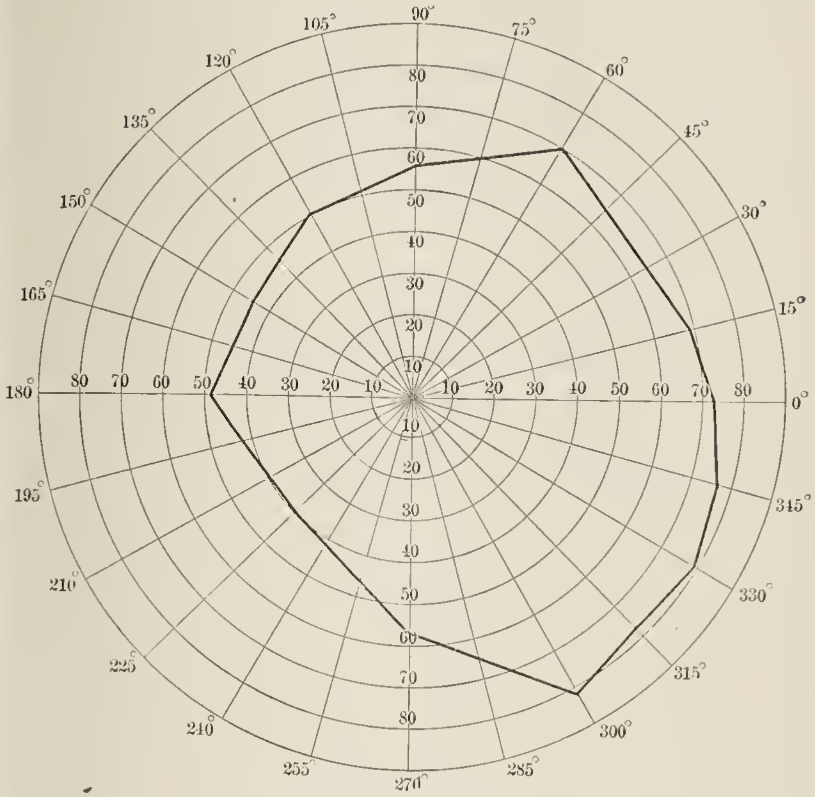
T. C., aged twenty-one years, came to Pittsburgh Free Dispensary, March 19, 1895. Family history negative. Never had any of the diseases of childhood except pertussis. At the age of thirteen years and a half he worked in a chair factory at varnishing. The room was often so filled with fumes that he was compelled to go to the door for fresh air. Whether these were fumes of lead I am unable to make out; but he states that lead was used in this factory, although he did not work in it. He was employed in this place until the age of sixteen, or until a year after the initial appearance of his present trouble. From the age of sixteen to eighteen he worked about a place where nickel and silver plating was done, although he himself did not actually work in these metals. From the age of eighteen until a few weeks ago he worked in a shop where mirrors were backed. Here, again, he did not actually work in the metal (mercury), but was employed at polishing frames.

At the age of fifteen a tremor appeared in the hands. This was apparent upon emotion or attempts at fine movements. It annoyed him especially in writing labels, which constituted part of his duty. About two years ago he noted tremors in his feet. For the past six months he has had a decided tendency to protrude the head forward and to the right in walking. He has gradually grown weaker and emaciated, although he has worked regularly until recently, and even now hopes to resume his occupation.

Examination.—The boy is thin and emaciated. Gait spastic. Walks in a clumsy, shuffling manner, with head protruded forward and to the right. When sitting quietly a very distinct tremor in hands and feet, somewhat coarser than that of paralysis agitans, is noted. Some tremor in the face and tongue during emotion. The tremor in the hands is not increased in picking up a pin, buttoning a coat, carrying a glass of water to the mouth, etc. Both knee-jerks are somewhat, although not excessively, exaggerated. Ankle clonus present. Pupils dilated; eyes somewhat protruding, and there is a slight internal squint. No nystagmus. Speech at times somewhat halting. The mental processes are rather slow, and there is apparently some enfeeblement of intellect. There is considerable general loss of strength; no atrophy. Pulse regular, 72.

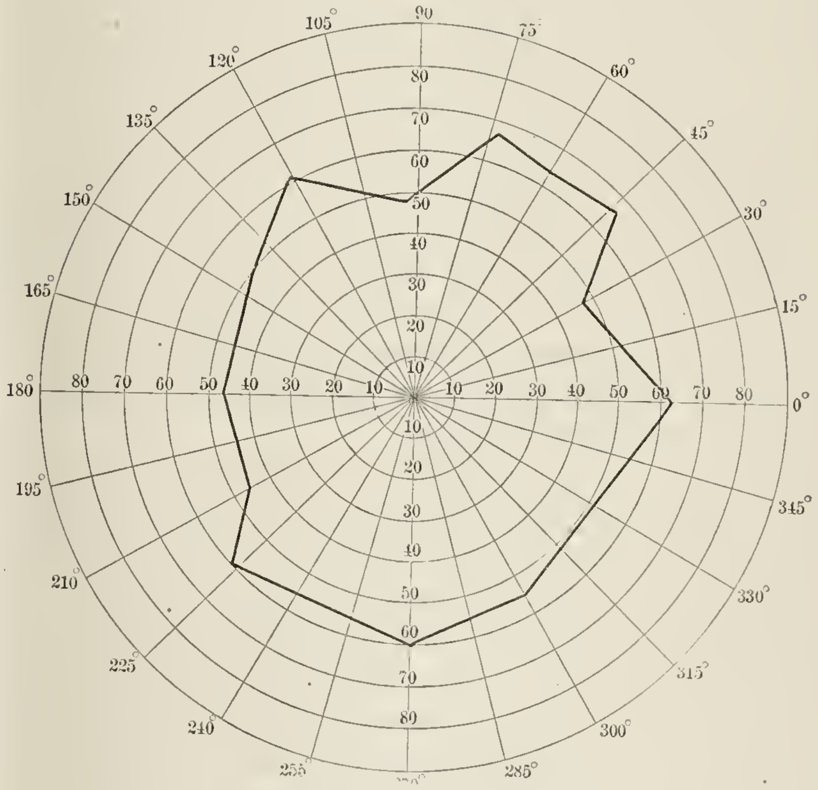
He states that when he is quiet and alone the tremors are entirely absent, and may remain so for hours at a time.

The visual fields were taken by Dr. Joseph E. Willetts, as shown in the accompanying charts. Dr. Willetts found: L. V. $= \frac{20}{30}$; no changes in the fundus. R. V. $= \frac{20}{100}$; slight contraction of the arteries; no pallor of the disc, but it is sharply defined.



Field of vision of the right eye.

Remarks.—If this case is regarded as one of insular sclerosis, it must be looked upon as a very atypical one, at least so far as the tremor goes; for Gowers states:* "It is said that in rare instances the movements have been known to continue during rest, but there is some doubt as to the nature of such exceptional cases." When it is remembered that the tremors in this case were present at times during rest, and that what is very generally regarded as the most obtrusive symptom of the disease—viz., the wide, coarse tremor on attempted fine movements—was absent, the difficulties in diagnosis are at once very apparent. I have, however, ventured to diagnosticate the case as one of insular sclerosis from the presence of the other symptoms: viz., the general weakness and emaciation; the clumsy, shuffling,



Field of vision of the left eye.

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* Paper read and patient presented at the meeting of the Pittsburgh Academy of Medicine, April 15, 1895.

* *Diseases of the Nervous System*, vol. ii, p. 548.

spastic gait; the exaggerated reflexes; the presence of ankle clonus; the protrusion of the eyeballs and internal squint; the slight speech affection; and the mental impairment.

Aside from the tremor symptom, it is very evident that the patient is suffering from some serious, chronic, progressive organic disease; and as he presents a tremor, one naturally thinks of the more probable affections of which tremor is a symptom.

The nature of the tremor, the age, and the whole attitude of the patient, at once throw out paralytic dementia and paralysis agitans. Nor does it seem possible that this is a case of Friedreich's ataxia or of Graves's disease. Indeed, the only affection which to my mind arises to present real difficulties in the way of diagnosis is metallic poisoning, and this difficulty is all the greater when we consider that for seven years this boy was in a position to be poisoned by lead, nickel, silver, and mercury. The boy was working in a factory where lead was used, and suffered there from tremors for a year before he left it to take up work in a new place. So, if it is assumed that the tremor is due to metallic poisoning, the initial change must have been set up by lead. From the tremor alone, I know no way of distinguishing it from that produced by lead or mercury. I am disposed to throw out the diagnosis of metallic poisoning, because I have never known instances, nor can I find any in literature where, aside from the tremors, symptoms such as this patient presents were exhibited. On the other hand, leaving out of consideration the tremor, the symptoms the patient presents are very like those frequently observed in disseminated sclerosis.

There is not present now, nor have we a history of colic, palsy of extensor muscles, or blue line along the margin. Assuming this diagnosis of insular sclerosis to be correct, could we in any measure account for the atypical nature of the case by supposing that besides the pathological process of insular sclerosis there is also present as a modifying process some metallic poisoning?

In view of this possibility, and also of some chance that the case may after all be one of metallic tremors, I have deemed it advisable to give the boy for a time small doses of iodide of potassium for the effect it may have in eliminating any of these poisons which may be present in his system; and as I have no knowledge of any drugs which have any real curative effect in disseminated sclerosis, this course in therapeusis seems to me the best under the circumstances. Hyoscyamine has in this case (as it will in most cases of tremors of any sort) notably controlled them.

Westinghouse Building.

The Treatment of Headache.—In the *Lyon médical* for May 5th there is an abstract of an article by Dr. Mobius, which was published in the *Union pharmaceutique.* The author finds that it is possible to stop the tendency to fresh attacks of headache by the use of sodium salicylate. Every evening, and also in the intervals between the attacks, fifteen grains of this drug should be given in a cup of black coffee. Its employment is to be more or less prolonged according to circumstances. The author does not hesitate to use morphine subcutaneously in cases where the pain is too violent to yield to the employment of antipyrine, sodium salicylate, etc.

THE DIAGNOSIS OF CHRONIC JOINT DISEASE.*

By W. R. TOWNSEND, A.M., M.D.

In the subdivision of medicine into specialties, chronic joint diseases are usually referred to the orthopædic surgeon for treatment, but the early diagnosis of these affections has to be made by the general practitioner. He first sees the patient, and either correctly interprets the symptoms of beginning trouble, or, after a more or less careful examination, decides that the condition is due to a sprain or to rheumatism, or perhaps detects nothing abnormal, only to learn later, in many cases, that he has made a serious error.

Many a practitioner, when called to such a case, will admit his lack of knowledge and at once call in a consultant, who can correctly interpret the signs present. This, while preferable to committing serious errors, should rarely be necessary, for all practitioners should be able to make the diagnosis, at least in the simpler cases. Obscure and difficult types will require much thought and large experience to correctly interpret, but they are not often seen.

Errors are usually due not so much to ignorance as to a failure to thoroughly examine the patient. Many, however, lack the necessary knowledge of how to examine and bring out the symptoms, and the object of this paper is to refer to the principal symptoms of chronic joint disease and to show how the examination should be made to detect their presence or absence.

In speaking of chronic joint disease I refer to those cases of arthritis or osteitis, chronic in nature, due to tuberculosis or traumatism, beginning either in the joint structures or in the bone, which are mostly seen in the first two decades of life. In examining a patient with suspected joint trouble our first step is to obtain a careful and accurate history. This is not always an easy matter, and too much reliance must not be placed on statements made until a very close cross-examination proves that the parent or patient is an accurate observer; for chronic joint disease comes on, as a rule, insidiously, and the first symptoms are apt to be overlooked, and a serious exacerbation due to a traumatism will be assigned as the cause and beginning of the disease when it is not. But histories have their value, and should be weighed with the symptoms in making a diagnosis.

The most constant and characteristic symptoms of chronic joint disease are reflex muscular spasm, limitation of joint motion, deformity, atrophy, and pain. The presence of these symptoms, with the history, will enable us to make the diagnosis.

The instruments used to aid us in the examinations are few and very simple. An ordinary tape measure is necessary to determine any alteration in the length or in the circumference of a limb, and also either an increase or decrease in the size of an articulation. The steel tape, while it may be more accurate, is not as convenient as the ordinary tape; it is too stiff and unyielding, and our preference is for the cheaper and simpler one.

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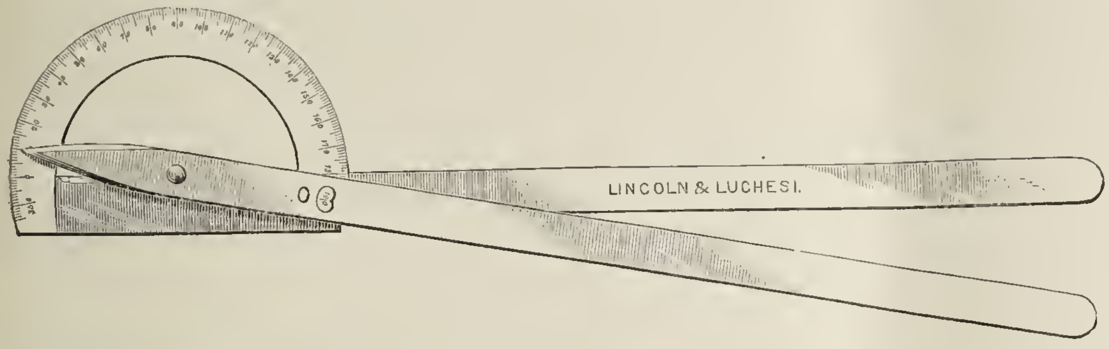
* Read before the Society of Alumni of Bellevue Hospital, April 3, 1895.

The only other instrument needed is a goniometer. This is used to measure the amount of motion of the joint. It consists of a half circle, with the degrees marked upon it from zero to one hundred and eighty. There are two arms to it, one fixed, the other movable. The fixed arm has attached to it the graduated arc. The movable arm has its centre of motion opposite the ninety-degree point, and when placed at zero and one hundred and eighty degrees is exactly parallel with the fixed arm.



To measure the amount of motion of any joint, we place the instrument opposite it, the joint centre of motion being opposite the centre of motion of the movable arm, and by having the two arms correspond with the long axis of the bones entering into the articulation any movement of the joint will show us in degrees the amount. This gives an accurate measurement, and may enable us to detect slight limitations which might otherwise be overlooked.

The most important symptom in chronic joint disease, as was first prominently pointed out by Shaffer, is reflex muscular spasm. It is among the earliest to appear, and the one upon which we rely the most to make a diagnosis. It is an involuntary muscular protection of the articulation; it precedes the limp, and may really be said to cause it, for, disease being present, reflex spasm causes a limitation of motion in one or more directions, and this causes a disturbance in the rhythm of the gait, and a limp follows necessarily. This muscular spasm may be very slight and only noticeable at the extremes of motion, and there may be no deformity as a result; or it may be so great as to lock the joint, and this usually occasions deformity of a marked degree. Spasm is present by day and by night, does not yield to sleep, but completely disappears under anæsthesia, hence the uselessness of giving an anæsthetic to determine whether or not there is beginning joint disease.

To this condition of spasm we may in some cases attribute the pain in the articulation, as it tends to bring in contact the diseased surfaces, and this may be the cause of the night cries.

These night cries are quite characteristic of chronic joint disease, and while their absence is not proof positive that disease does not exist, yet their presence is very suggestive of it. They are more frequently found in disease of the larger articulations than when the smaller are affected. The night cry of spinal disease is more apt to be dull in character, rather a moan than a sharp cry, which latter prevails in hip and knee disease. The position taken by Valette, "that there can be no hip disease if the motions of the joint are perfect," is also true of other joints. The reflex muscular spasm, when once present, remains until a cure is effected, and this is important. The limp may apparently disappear, yet, if true joint disease exists, examination will show a limitation of the normal movements, although it may be very slight, or may only be clearly brought out when the child is fatigued. Of course, it also follows from this that we may make the diagnosis before lameness occurs. Careful and constant examination of normal and diseased joints will enable any practitioner to acquire the *tactus eruditus*, and to distinguish reflex muscular spasm when present.

As a result of the joints and the muscles about them being supplied by the same nerves, atrophy is another early symptom of value. Brown Séquard years ago showed that nerve irritation alone was capable of determining rapid and early atrophy of the muscles with a decrease or disappearance of the faradaic contractility. This atrophy is not necessarily due to a neuritis, but rather to trophic changes, and comes before disuse of the limb could cause it, although the latter is a potent factor later on in the disease.

This atrophy usually affects muscles on both sides of a joint, but principally those whose nerve supply is the same as the joint. The atrophy also causes changes in the contour of the parts, and in many cases an apparent increase in size of an articulation is simply due to atrophy of the parts near by. Pain may or may not be a symptom of chronic joint disease; it is very unreliable, and may not be felt at all in the diseased articulation, but at the terminations of some of the nerves sending filaments to the joints, as the pain of Pott's disease often felt in or about the stomach, and the pain of hip disease felt at the knee. Some patients have joint disease with abscesses and serious complications and yet never have pain, while in others it is a most prominent symptom. Joint tenderness or pain on pressure also varies greatly. The absence of pain is not of great value, but its presence with other symptoms is. The deformity in joint disease is due usually to the muscular spasm in early stages, later to joint changes; and with this brief description of the principal symptoms I will refer the reader to the various text-books on surgery for description of the particular symptoms in each joint, and now give a short account of the normal movements of the different joints, and how to examine them to determine the presence or absence of reflex muscular spasm and limitation of motion, of atrophy, and pain.

In the first place, it is absolutely necessary in the examination of any joint that the clothing be removed to a sufficient amount to permit of free inspection of the joint, and of the corresponding one of the opposite side. In the case of young children no difficulty is experienced, and there will be none in those of more mature years if the necessity for the procedure is explained to the patient.

Disease of the Spine.—To determine the presence or absence of reflex muscular spasm in spinal disease it is necessary to have the patient stand before us so that the entire back can be clearly seen. If the disease affects the cervical region, the muscles in and about the neck, both posteriorly and laterally, will be tense in a state of spasm and prevent free motion of the head. The head may be inclined backward, forward, or to one side, and so held.

Systematic and methodical examination should be made here as also in all other joints, for only by such methods shall we be sure to overlook nothing of importance. The patient standing erect, note should be made of the contour of the spine, whether the normal curves are present, and whether there are any lateral, posterior, or anterior deviations. The movements of the head should then be tested, whether the patient complains of symptoms especially referable to that region or not. First, cause the head to be lowered so that the chin may approximate the sternum, then cause it to be raised and bent backward so that the occipital portion approximates the spine. Then ascertain the amount of lateral motion by causing it to be rotated so that the chin first approaches one shoulder, then the other. The patient having done these motions alone, grasp the head in your hand firmly but gently, and passive motion will give you the limits, if any, and enable you to detect the presence or absence of muscular spasm. The back itself should then be tested by causing the patient to bend forward, backward, and to either side, and comparing the amount of motion with the motions of the normal spine. The movements of the lumbar and lumbo-sacral spines can not be well tested with the patient standing, so we examine for the presence or absence of spasm in these parts by causing the individual to lie on the face on a hard couch or table, and by raising the lower extremities with the hands we can detect any limitation of motion.

As we have no other joint in the same individual to compare these movements with, careful examination should be made of normal spines in patients of different ages to acquaint ourselves with the normal limits. Of course these vary greatly; the stout and the aged are far less supple than the thin and the young, and acrobats and gymnasts can bend far beyond the normal average; but a little practice will tell whether the inability to bend the spine is due to reflex muscular spasm or not. In some instances the spinal muscles will stand out prominently, being firmly contracted; but this is not always the case. When spasm exists in the cervical region alone, the lower dorsal and lumbar regions may be freely movable, and spasm of the lumbar region may not interfere with the motions of the head, but disease of the dorsal and lumbar regions is usually accompanied by a stiffness of the entire spine. It moves as one long bone, not as a number of small ones. In the normal spine the hips can be raised easily to form an angle with the vertebral column of thirty or forty degrees, and the motions laterally are very free, and any limitation, especially if accompanied by pain, should cause a careful examination to be made to see if any other symptoms of spinal disease are present.

No motions or tests should be made, except with the greatest possible care, to elicit pain in the vertebræ; violent jarring of the head or severe bending of the spine may produce serious injury, and is never necessary to make the diagnosis.

Atrophy in spinal disease is difficult to measure, but may exist; it is of less importance in these cases than in disease of other joints.

The Shoulder.—In examining the shoulder and other joints besides the spine we have the benefit of another articulation of the opposite side for comparison, for there are practically no cases on record where similar joints of both sides of the body have been affected with chronic joint disease beginning simultaneously, although disease in one articulation may very rapidly follow disease in another.

The motions of the shoulder joint are flexion, extension, abduction, and adduction; and the combination of these in quick succession produces circumduction. In addition to these we have rotation, which is the movement round a vertical axis through the extremities of the humerus from the point of the head to the inner condyle, and this may be forward or backward.

The movements of the shoulder are very free, and in chronic joint disease always more or less limited, usually abduction being most markedly so. Normally the arm can be abducted to ninety degrees by the deltoid, and then raised even more than ninety degrees further by the trapezius and others.

Each motion should be carefully gone over and tested with the similar motion of the other shoulder, and spasm and limitation of motion will easily be detected. The amount on each side should be measured for purposes of comparison. Here, as in other joints, it is best to examine the normal joint first, as it often enables us to acquire the confidence of the patient, especially in children. The circumferences of the parts in and about the shoulder should be measured to determine the presence or absence of atrophy, and no tests made to elicit pain.

The Elbow.—The elbow being a hinge joint, flexion and extension are the only movements which can take place. These movements are oblique, the forearm being inclined inward in flexion and outward in extension. Flexion and extension are limited by contact of the coronoid and olecranon processes of the ulna with their corresponding fossa in the humerus. The limit of extension is reached when the ulna and humerus are nearly in a straight line or at about a hundred and seventy-five degrees; and flexion can be carried up to about thirty-five degrees, and is not limited by the coming in contact of the soft parts of the forearm and arm, but upon the proportion which the length of the olecranon and coronoid processes bear to the depth of the olecranon and coronoid fossæ. Any limitation in these motions accompanied by spasm, atrophy of parts below and above, and pain, together with the history, will enable us to make the diagnosis.

The Hip.—This is the joint we are most often called upon to examine; and to properly examine it, the patient should lie flat on the back on a hard couch or table, so that the spine can be made to touch the table and any tilting of the pelvis can be noted.

The normal motions are flexion, extension, abduction, adduction, rotation, and circumduction, but the latter may be left out in tests for limitation of motion. Extension beyond a hundred and eighty degrees is often spoken of as hyperextension, thus giving us seven motions.

The movements should be carefully examined and in regular order. The limb should be grasped firmly, and each motion carried to the full limit, or until spasm is elicited and the motion checked.

In well-marked cases of hip disease all movements are restricted, but in beginning disease only a few may show this restriction, and in such cases the greatest attention is to be paid to interference with abduction, superextension, and external rotation. Interference with extension alone is more apt to be due to spinal disease as a result of psoas and iliacus contraction than to hip disease.

The normal limits of the various movements at the hip vary considerably. Flexion is checked at about ninety degrees by the hamstring tendons if the knee is straight; but if the knee is bent it can be carried from forty to sixty degrees further, being then limited by the contact of the soft parts of the thigh against the anterior superior spine and abdomen. But the normal limits are greatly exceeded by many gymnasts and high kickers. The limitation from a straight knee should always be borne in mind, for the error is often committed that flexion of the thigh is limited when no such limitation really exists. Where knee disease is present, the thigh must be grasped above the knee and care taken not to make motion at the knee at the same time we make motions at the hip. Extension should be tested with the patient lying on the back, and such position is limited to a hundred and eighty degrees. To test for superextension, place the patient on the face, grasp the thigh, and note the distance the knee can be raised from the table. Usually the amount of superextension is about forty degrees. This motion is limited by the ilio-femoral ligament.

Abduction and outward rotation are possible in any position of the leg. Abduction may be carried to ninety degrees, but the average is about forty degrees; and when abducting the thigh it is well to steady the pelvis with the other hand so as to note the least spasm, which at once causes the pelvis to tilt.

Adduction and inward rotation should be tested for both with the thigh extended and flexed. When the thigh is extended the range of motion is much less than when flexed, because of contact with the opposite limb. It averages about thirty degrees. Rotation is best brought out by having the patient on the back and rolling the thigh under the hand.

Too much attention is usually paid to the division of hip disease into stages, with descriptions of the different deformities in each stage. Determine the presence or absence of reflex spasm, the presence or absence of atrophy of the thigh, the night cry, and the presence or absence of pain in the articulation, get the history, and the diagnosis can be made; and then the position of the limb should be noted, whether abducted or adducted, flexed, rotated in or out. That in the first stage abduction and apparent lengthening are the rule, in the next adduction and apparent shortening, in the later stages flexion, adduction, and real shortening, are facts which will necessarily follow when the disease is more closely studied. The position of the thigh and the presence or absence of atrophy will determine the shape of the nates, and the position of the fold of the buttock the gluteal crease.

In early examinations it is not advisable to use Thomas's test to determine the amount of flexion, as it may increase intra-articular pressure. This test is made by flexing the sound thigh on the abdomen and holding it there by the patient's hand placed in the popliteal space, then bending down the diseased limb as far as possible. In testing for pain, never use force; never jam the head of the femur against the acetabulum by knocking on the heel.

The Knee.—In the knee the motions are extension and flexion, and when the limb is flexed a slight amount of pronation and supination. The movements, though, are much more complicated than at the elbow, as it is not a true hinge joint.

Remembering the fact that the points of contact of the articular surfaces shift, we see how the subluxation deformity so easily occurs when the hamstrings are firmly contracted by muscular spasm.

The limitations of normal motion are in extension when the tibia and femur are in a straight line. The patella is usually freely movable, and all the ligaments of the joint are on the stretch save the ligamentum patellæ and the front of the capsule. The motion is checked by the crucial and lateral ligaments.

Complete extension is always interfered with in chronic joint disease, and the inability to bring the knee perfectly straight is an important symptom. Flexion is limited by the contact of the soft parts of the calf and the posterior surface of the thigh. Starting with the leg fully extended at zero, it is permissible to the extent of a hundred and thirty to a hundred and sixty degrees, according to the fleshiness of the individual. Its limits can be easily determined in a diseased joint by comparing it with the sound joint.

Pronation and supination are limited even in the slightest cases. The amount of rotation in the normal joint when the knee is flexed forty degrees varies, but is about thirty degrees.

Atrophy is usually present both in the lower part of the thigh and in the calf.

Pain on pressure may be felt at this articulation, and is usually referred to the inner side of the joint, where the capsule is the thinnest and the bone nearest the surface.

The Wrist.—The normal movements of this joint are flexion, extension, abduction, and adduction, and the combination of circumduction. Comparison of the two sides will show any differences, and spasm can be easily made out.

The Ankle.—This joint, being of the true hinge variety, permits only flexion and extension, but a very slight lateral movement is permitted when the foot is in extreme extension. Flexion may be carried to about forty degrees, and extension usually not over ten or fifteen degrees.

Movements of the smaller joints need not be discussed, but a careful test for reflex spasm and limitation of motion is the most important part of an examination to establish the presence or absence of chronic joint disease.

28 West Fifty-ninth Street.

THE PRESERVATION OF THE PERINÆUM.

A NEW METHOD.

By D. B. McCARTIE, M. D.,
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There are many methods recommended in order to preserve intact the lower section of the vaginal outlet, which for the sake of brevity and description is called the perinæum. If we take the vagina as a canal, the perinæum may be said to inclose the posterior segment of its lower outlet, and also to fill in this outlet by a kind of elastic plug which reaches from an angle on the posterior wall and slopes downward to meet the skin at the margin of the posterior vulvar junction.

To preserve the middle section, but more particularly the marginal band, of this tissue during the passage of the fœtal head through it, becomes a specific duty for the physician as well as a great benefit for the patient. It is, indeed, the most important part of the physician's work in the end of the second part of a labor to direct his attention to the preservation of this tissue. He can do very little to help the uterine force, but he can do much to control its action on the lower genital segment by preventing the child's head from coming in contact too violently or too soon with a tissue which may not be prepared to allow the passage of the fœtal head.

The old plan to preserve this tissue from laceration was to "support the perinæum." This meant that the hand should be placed flatly against the bulging surface of the perinæum so as to prevent it bulging too much. It has been found that this method, like any other obstruction to uterine force, only increases the uterine contractions, and may even retard the labor, since the pressure acts too directly in the axis of the propelling force. Moreover, by this means the center of the perinæum is mostly supported, and this is the part that least needs support, while the marginal edge is as much liable to tear as ever. For many reasons this procedure has passed out of use, and other and better methods are employed.

The other methods entail a double procedure: First, they aim at preventing the too rapid advance of the head; and, secondly, they make use of an artificial propelling force by which the head is pressed toward the outlet under the pubic arch. The object of the various methods employed must necessarily contend against the too rapid and too spasmodic force from behind, since it is this force that ruptures the perinæum; but the second part of the procedure—namely, the pushing forward of the head under the pubic arch—seems worthy of some modifications, if, indeed, we should attempt to use any force at all in this direction, with the view of pushing the fœtal head through the vulvar outlet.

This paper deals, therefore, mostly with the second part of the rule laid down in every text-book as to the best means of saving the perinæum from laceration, and also with the best mode of applying a counteracting force so as to prevent the too rapid advance of the fœtal head. The pushing forward of the head after it reaches the perineal floor is, as a rule, uncalled for, and against the use of Nature, except in special cases. This method of itself is sufficient to cause laceration, which is the very thing we are trying to prevent.

If it is necessary to deliver the head quickly—and this must be a rare condition—it can be pressed forward from behind. This is especially easy in a large multipara, when the rupture of the perinæum is scarcely possible; but if the head be artificially pressed forward in a primipara where the perinæum is at stake, it often helps, I believe, to lacerate the parts we strenuously wish to preserve. There is a wonderful aptitude on the part of the physician to push the child's head forward and so terminate the labor, as there is a natural tendency on the part of the patient to be delivered from pain.

Before describing the method I intend to propose as a safe and natural one, by which the fœtal head can be aided in its exit from the vulva with the least risk of rupture, it may be necessary to mention a few of the most common methods in use at the present time.

One method is as follows:

"The index finger of the right hand may be placed on the thin edge of the perinæum so as to note its tension, while the tips of the remaining fingers placed on the occiput check its advance when tension becomes too great. At the same time the left hand is spread out flat behind the perinæum, so that the index finger and thumb press on the head a little in front of the sacro-sciatic ligaments on each side and direct it forward, without exercising any pressure on the sensitive central portion of the perinæum where the strain is greatest. Thus both hands act together in checking advance when necessary, while the left hand keeps the head forward against the pubic arch. The patient is not to hold her breath, and chloroform should be used if she loses her self-control.

"There is another mode of directing the head forward besides that of spreading out the thumb and fingers in front of the sacro-sciatic ligaments—namely, to pass the thumb or fingers through the dilated anus into the rectum and press on the head through the recto-vaginal sæptum. This is mechanically very effective; on the whole, it is not so desirable a plan as the other." *

The percentage of laceration of the perinæum is put down by Olshausen as 21 per cent. in primipara and 4·7 per cent. in multipara.

Other measures adopted to save the perinæum from rupture are Hohl's, which consists of applying the thumb anteriorly to the occiput, and the index and middle fingers posteriorly upon that portion of the head which lies nearest to the commissure. The unconstrained position of the hand enables the operator to exercise effective pressure in

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* Galabin. *Text-book on Obstetrics.*

the direction of the vagina, while the posterior fingers favor the rotation of the head under the pubic arch.

Ritgen's method consists in lifting the head upward and forward through the vulva between the pains by pressure made with the tips of the fingers upon the perinæum, behind the anus, close to the extremity of the coccyx.

All the various methods employed and described have in common two indications: one being to retard the passage of the head, and the other to press the head forward from behind. The first condition is a necessitous one, since the rupture occurs because the head passes too spasmodically through a canal that is not sufficiently dilated; but the second part of the procedure seems more liable to rupture than to preserve the perinæum. For this I shall give the reasons later.

One of the latest methods which has found warm advocates is rectal expression. "This manœuvre consists in passing two fingers into the rectum toward the close of the second stage and hooking them into the mouth or under the chin of the child through the thin recto-vaginal sæptum. By pressing the face forward and upward the normal rotation of the head beneath the pubic arch can be effected, and delivery can be accomplished between the pains at the will of the operator."

A recent author recommends hooking two fingers into the anus and drawing the perinæum forward during a pain, to remove the strain from the thinned border of the vulva and to promote the elasticity of the tissues.

Fasbender places the patient upon the left side, then, standing behind her, he seizes the head between the index and middle fingers of the right hand applied to the occiput, and the thumb thrust as far into the rectum as possible. By this manœuvre the head is held under complete control, the rectal wall hardly affecting the grasp in any appreciable manner. During a pain the progression and extension of the head are readily prevented. During the interval between the pains, by pressure with the thumb through the rectum and the posterior portion of the perinæum, the head can be pressed forward and outward at the will of the operator.

The various methods described deal very little with the position of the head in its passage through the vulva; in fact, the authors of these methods all assert that the head, in one manner or another, should be helped through the vulvar outlet by means of extension. The idea of extension as the natural process of birth is evidently adopted on account of the slight curve at the lower end of the genital canal. The curve of the canal is somewhat in a forward direction, but if the perinæum or soft parts were removed, the axis of the canal from above downward would look somewhat backward. The curve in the coccygeal bones also adds to the idea of a forward curve, but these parts are almost straight when the pressure of the head dilates them. The head of the child is pressed directly downward on the perinæum, the resistance of which, being greatest behind, pushes the occiput forward, so that when the head is freed from the outlet the elastic perinæum, still acting on the frontal region, presses the occiput toward the abdomen of the mother.

But it does not follow that this mode of extension of the head is in progress all the time before the head is born. On the other hand, flexion is naturally maintained; the elasticity of the perinæum, acting from behind, is counteracted by the outer rigid bony parts of the genital canal while the head is descending. When the forehead meets the perineal floor extreme flexion occurs, thereby giving the occiput the best chance of slipping out of the genital canal and passing under the pubic arch. As a consequence of this we see the occiput born long before the forehead. When, therefore, the occiput is born, the pressure of the elastic perinæum from behind pushes the base of the occipital bone under the pubic arch, and thereby some extension is caused.

This is usually the time when the action of the physician is called for, and, according to the rules already referred to, his duty then is to cause the head to rotate or extend itself forward and sweep over the perineal floor.

I would strongly advocate the opposite of this, which means that the act of extension is uncalled for, and that the head should not be pressed forward, since this very action tends to rupture the soft parts. On the other hand, when the resistance of the bony parts of the pelvis is removed by descent and exit of the occipital region of the head, the physician should substitute a force for the natural one, to counteract the elasticity of the perinæum and keep the head flexed. There can be no doubt that it is extension of the head that lacerates the perinæum in most cases after the occiput has slipped under the pubic arch. The flexion of the head can be maintained in a very simple and easy manner, as follows:

The patient should be on her left side to get the best results. The head is to be kept flexed even while in the genital canal, though this is not an absolute necessity; but after the occiput has reached the outlet and we can easily grasp it, it is best even at that early stage to begin flexing the head, since this helps to allow the occiput to slip from under the pubic arch earlier than it otherwise would, and also helps to dilate the perinæum by keeping the forehead region rigidly compressed against it. When a part of the occipital region is born it should be grasped by the fingers in front by the right hand (*i. e.*, the fingers near the mons Veneris of the mother), and the thumb behind on some portion of the parietal bone. By this method the head can be kept thoroughly flexed in a most easy and satisfactory manner. The uterine force can be easily counteracted, and the extreme efforts of the patient are easily controlled, because, the head being thoroughly flexed, the force is controlled in the direct axis of the uterus; but, more important than this, the elasticity of the perinæum is counteracted, and extension or rotation over its floor is prevented. The two forces, uterine and perineal, are directed more into a downward movement of flexion, and not in a forward one of extension.

The reasons for the adoption of this procedure are as follows:

1. The smallest diameter, the suboccipito-bregmatic (three inches and three quarters), is the first part to meet the vulvar outlet, and besides being the smallest it is also

the longest, and tapers smoothly and gradually toward its thickest diameter. It therefore forms a natural dilating plug, and if kept thoroughly flexed gives the soft parts the best chance of allowing it to pass without rupturing them.

2. If the head is kept thoroughly flexed the forehead is pressed against the resisting part of the perinæum behind, which tends to press the occiput forward and downward, but mostly to guide the uterine force in a downward direction. But if the forehead is pressed forward by any of the methods employed, the force of the perinæum, which would naturally direct the head in a downward direction, presses it almost directly outward, and tends to lacerate the soft parts by the act of extension. But what is exceedingly more dangerous to the integrity of the perinæum, namely, an exchange of a larger diameter of the head for a smaller one, occurs. The occipito-frontal diameter of four inches and a half is exchanged for the suboccipito-bregmatic of three inches and three quarters. This immense gain of three quarters of an inch at such a crucial time is not likely to act as a preservative agent in protecting the soft parts, and especially when we consider that the part then presenting at the lower region of the perinæum, and which will escape through the vulva, is not an elongated, dilating, and flexible plug, as the occipital region, but a hard, semifrontal, rigid, and bossy plug, as the front part of the cranium.

3. Extension of the head does not naturally occur to any degree worth speaking of before the entire head is born. In fact, the genital canal when dilated must be almost straight, except for the slight curve of the perinæum. The head turns up when it is born (extension) because the suboccipital region is first born, and being no longer opposed by the rigid structures of the pelvis, the perinæum forces it toward the abdomen of the mother. After it slips under the pubic arch it remains pushed up there by the pressure of the perinæum on the frontal and postfrontal regions. When this pressure is removed as the forehead is born, the forehead is released from pressure and the head naturally falls downward.

4. The occipital region, being born first, slips under the pubic arch. If the occipital region is then seized by the fingers, the thumb being on the postfrontal region in some site over the parietal bones, thorough flexion can easily be maintained. The chin can be pressed on the chest, the forehead can be kept well backward against the posterior aspect of the perinæum, and as a consequence of this the perinæum directs the head somewhat outward and downward. The physician retains the flexed condition with one hand, so that the smallest diameter is always presented with the least fear of rupturing the soft tissues.

5. Extension of the head over the perinæum as it passes forward is not the natural process of birth. It is a convenient way to precipitate the birth of the head, but it is premature and unnecessary when the perinæum is rigid and liable to rupture. The long arm of the lever maintains the flexed position until the last unless interfered with. The sloping elastic perinæum also tends to preserve flexion while the head is passing it, and it is when the head passes beyond control of the perinæum that extension toward the abdomen of the mother takes place.

The amount of extension that takes place then is very little. The occiput being free on account of the slope of the neck, the pressure of the perinæum from behind pushes the head in an upward direction. This occurs on account of the sloping formation of the occipital bone and the pressure from behind; but it does not follow that extension of the forehead occurs in the genital canal. Flexion is maintained by the perinæum as long as the occiput was opposed by the rigid walls of the pelvis.

The idea that active extension is going on in the vagina is mostly held because the head is thrown into marked extension when the occiput is liberated, but this naturally follows because the occiput becomes free to move after the resistance of the pelvic bones is removed and the perinæum still continues to act. This is, then, the peculiar time for active work on the part of the physician who wants to save the soft parts from rupture. After the occiput is born the perinæum is mostly unopposed, and the action of its continued force is to extend the head slightly, or, in other words, to help to sweep the forehead over the perineal floor. This endeavor to extend the head should be controlled by the physician, since extension means a larger diameter with the bossy forehead and sharp margins of the eyebrows opposed to the soft parts of the margin of the perinæum.

The occiput in its first passage through the vulva never tears it. It gradually thins and stretches the soft tissues until it slips under the pubic arch. Then occurs the danger that some extension will take place and the vertex and frontal regions sweep over the perinæum. After the largest diameter is through the thinned-out perinæum is further subjected to strain, when it peels over the lower frontal and face regions until the head is born.

By the method I suggest, therefore, extreme flexion is to be maintained from first to last. The fingers on the head should try to maintain flexion and resist extension even before the occiput is born. This helps to free the occiput early, and it slips under the pubic arch. Then the fingers of the right hand grasp it firmly, while the thumb of the same hand is placed over the parietal region and flexion rigidly maintained. By holding the head in such a fashion the strongest pains are easily controlled, and the head, at the judgment of the physician, can be let out half an inch or an inch, according as he desires. This desire will be actuated by looking at the margin of the perinæum and noticing how much the parietal bones stretch it during a pain. If the thinned-out margin of the perinæum grows too thin, becomes white and glistening, the eye appreciates the danger and the hand counteracts the force of the uterus by maintaining flexion. It will be found that the strongest pains can be readily controlled with one hand by this means.

If the perinæum is very rigid it can be softened during the interval between the pains by slightly extending the forehead and pressing it back into extreme flexion again. Of course this manœuvre is to be repeated.

If this method is employed, the danger to the perinæum is greatest when the bossy forehead and postfrontal region is about to pass, and this is mostly so because it passes quickly and the physician is desirous to have the head born. It is difficult to wait at this stage; but there is no hurry as regards the safety of the child, so the physician must judge very accurately how much he will allow the next pain to propel the head. If a slight tear occurs he had better keep the head back for several pains, and adopt the usual precautions by telling the patient not to strain too much or hold her breath, but, above all, he should avoid any degree of extension of the head. I believe most perinæums are ruptured by extension of the head in the anxiety to terminate labor, and where no assistance is at hand to check the too vigorous endeavors of the patient.

There is also another reason why extreme flexion should be maintained. If any degree of extension takes place, the uterus, acting directly from the breach to the head, forces the vertex against the lowest and thinnest part of the perinæum, and this reason by itself would be sufficient to rupture so delicate a tissue; but where flexion is maintained the uterine force is directed through the forehead against the sloping wall of the perinæum, which takes the force off the lower part of the perinæum and also acts indirectly in pushing the occipital region toward the vulvar outlet. But if this indirect force is removed by extending the head and thereby removing the forehead from the sloping wall of the perinæum, the entire action of the uterus is directed downward on the lowest and thinnest part of the perinæum, which it bulges and may tear centrally; besides, it loses the forward expelling force it gets when the forehead is well pressed against the sloping wall of the perinæum behind.

The patient should lie on her left side if the physician wishes to gain control over the perineal region. With the patient on her back it is impossible to control the uterine force in a satisfactory manner. The situation is very unsatisfactory where active manipulation is required. If the patient can not lie in the lateral position the above indications can still be fulfilled. The head can be kept thoroughly flexed with the right hand, and the physician should try and watch the lower margin of the vulvar outlet.

The methods in vogue strive to "shell out," as it were, the child's head from the genital canal. This might be well done in a multipara, where the perinæum is loose and delay unnecessary; but in a first birth the manipulation from behind, and the consequent substituting a larger occipito-frontal for a much smaller and tapering suboccipito-bregmatic, is, to say the least, an unnecessary procedure. The small vulva of a primipara can not be forced open by any such method. Extension adds to the gravity of the situation. Flexion gives most satisfactory results. The perinæum will not tear if time be taken and judgment used as to when the physician should allow the largest diameter of the presenting part to pass through the thinned and shining surface of the vulvar outlet. Much caution is required in taking the latter step, since it is very easy to mistake the amount of the fœtal head that is still to pass through, and an ardent wish for delivery on the part of the patient and the physician is present. The guide to this step is almost entirely the thinly stretched margin of the vulva.

It does not matter how much of the head is born if the vulvar margin is too tightly stretched. It is better, in order to avoid laceration, to return the whole head into the vagina and allow it to advance very little at the next pain.

If thorough flexion is kept up and no force used from behind—in fact nothing but the regulating force of the right hand in the position recommended—it will be found that rupture of the perinæum will be a rare event.

108 Belleville Avenue.

ON THE THYREOID THERAPY:

ITS HISTORY AND ITS USE IN INTERNAL MEDICINE.*

By S. J. MELTZER, M. D.

It is just a year now since I permitted myself to offer to you an extensive account of myxœdema.† For my attempt to speak again to you on nearly the same subject I have to shift the responsibility to our worthy president, who arranged for our meeting to-night a discussion of the therapeutic value of the thyreoid, and assigned to me the history of this new therapeutic agent and its application within the domain of internal medicine.

I have to confess, however, that I am rather glad of the opportunity to present to you once more the history of the specific treatment of myxœdema for the purpose of separating it from the doubtful company in which we are meeting it lately. I shall not speak of the advertised thyreoidine together with ovarine, cardine, etc. I have in mind rather those serious, scientific circles where the tendency lately became prevalent to bring together heterogeneous elements of treatment under the one head of the therapeutics of animal extracts. I remind you of the paper read by Fürbringer last winter at a meeting of the Society for Internal Medicine in Berlin. The title of the paper reads: On the Modern Treatment of Diseases with Fluids of Animal Tissue.‡ These fluids are counted up in parenthesis as follows: testicular, thyreoid, pancreatic, nerve, heart, and kidney juice (*Hoden-, Schilddrüsen-, Pancreas-, Nerven-, Herz- und Nierensaft*). In the discussion following this paper Goldscheider# reported that in a series of observations made by him in Leyden's clinic with several of the animal extracts it was established that none of these fluids had proved to be efficacious in the diseases for which they were employed. The tested animal tissues were pancreas for diabetes, thyreoid for myxœdema, bone marrow for pernicious anæmia, spleen for leucæmia, etc. Goldscheider considers this line of thera-

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* Read before the German Medical Society of New York, March 4, 1895.

† S. J. Meltzer. Ueber Myxœdema. *New Yorker medicinische Monatschrift*, April, 1894.

‡ Fürbringer, P. Ueber die moderne Behandlung von Krankheiten mit Gewebsflüssigkeiten. *Deutsche med. Wochenschrift*, 1894, Nos. 13 and 14.

Goldscheider. Zur Gewebstherapie. *Deutsche med. Wochenschrift*, 1894, p. 376.

peutics as a dangerous departure within internal medicine. I shall furthermore refer you to the recent paper of Henry Hun,[*] On the Use and Abuse of Animal Extracts. Though an enthusiastic admirer of the therapeutics of the thyreoid, he does not hesitate to treat it under the same head with Hammond's products. These few instances will suffice to prove the prevalence at present of a tendency to classify the thyreoid as belonging to the newly formed group of the so-called animal extracts.

The association of the thyreoid with the doubtful company is due not only to its being an animal tissue—there is rather a more conclusive argument for uniting the specific remedy for myxœdema even with the worst elements of the animal extracts. Myxœdema is caused by the absence or diseased condition of the thyreoid in the animal body. The feeding of the animal with thyreoid removes the myxœdematous state. Here, then, we see how the function of an absent or diseased organ can be supplemented by feeding with this organ of another animal. And this and nothing else is the idea upon which the treatment with cardine, ovarine, etc., is based. Furthermore, the historical sequence of events seems rather to justify even a closer union between the treatment of myxœdema with the thyreoid and the medicinal use of testiculine, cardine, etc. As you know, the idea of the animal extracts in its present form is to be traced to the proposition of Brown-Séquard to treat impotence with testicular juice. Two years later Paul and Babes suggested the treatment of the diseases of the brain with cerebrine, and the diseases of the kidney with nephrine, etc. This suggestion was simply an extension of the fundamental idea underlying the testicular therapy. And then followed the communication of Murray of the successful treatment of myxœdema with thyreoid, a method which at about the same time with Murray was proposed also by Brown-Séquard (with d'Arsonval). It is therefore only natural for those who do not know the real history of myxœdema and its treatment to assume that the thyreoid therapy also is simply a consequence of the old notion that the reduced function of a diseased organ can be improved by eating the identical organ of an animal. The notion is old, for according to Pliny the Greeks and Romans ate the testicle of the donkey for the sake of remedying impotence. Therefore we see how those who distrust the value of the animal extracts believe themselves justified in casting a slur upon the thyreoid treatment also. On the occasion of the demonstration of an improved case of myxœdema by Professor Mosler in the Medical Society of Greifswald,[†] the pharmacologist, Professor Schulz, entertained the society by quoting from a book of one Oswald Kroll, written at the beginning of the seventeenth century. There are recommended the lung of the fox against the disease of the lungs, the liver of the wolf for the ailments of the liver, and for eye troubles the eye of the ox, etc.

Now, gentlemen, let me tell you right here that the entire assumption is without any foundation. The treatment of myxœdema is valid upon another more solid basis than this cheap hypothesis which recommends a treatment of the diseases of the liver by the liver of the wolf, and impotence by the testicles of the donkey or sheep! On the contrary, I venture to state that all the therapeutic measures which have emanated exclusively from the wisdom of, say, *similia similibus*, and that means nearly all the animal extracts, are still far from being well-established facts. I shall not enter into a discussion of their merits. It will suffice to refer to the voluminous contradictory literature on the subject of testiculine, cerebrine, etc., or of the treatment of Addison's disease with suprarenals, of leucæmia with the spleen, and of diabetes with the pancreas, etc. The positive statements are in the minority and are decidedly not unassailable. Now contrast with those the reports on the infallible success of the treatment of myxœdema with thyreoid! No, the sweeping hypothesis of *similia similibus* has no share in the brilliant results of the thyreoid therapy; this is exclusively the fruit of well-considered biological experiments and clear, sharp clinical observations, as will be seen from the short outline of its history which I am now going to give.

M. Schiff,[*] as is now well known, was the first one (1859) to describe the complex of symptoms following the removal of the thyreoid in dogs. Cachexia strumipriva, or operative myxœdema, in man was first described by Reverdin[†] and then by Kocher[‡] in 1882 and 1883. Induced by these surgical experiences, Schiff[#] again took up his old experiments on dogs, and then made the observation that if the thyreoid of a dog was grafted into the peritoneal cavity of another dog no untoward symptoms followed the removal of the thyreoid in the latter animal. Schiff believed that the implanted thyreoid persisted in the peritoneal cavity and assumed the function of the removed thyreoid. With this interpretation the implantation could not be considered as a medicinal treatment; the removed thyreoid being simply supplanted by another one in another locality, the procedure could be considered as somewhat analogous to skin grafting. Schiff's experiments have been repeated and confirmed by v. Eiselsberg.[‖] Kocher[△] attempted the grafting of the thyreoid in man, but did not succeed. Bircher,[◊] however, implanted a human thyreoid successfully twice in one and the same person—a woman with cachexia strumipriva. The improvement following the first grafting lasted three months; after the second grafting the patient was in quite a normal condition for nine months, at the end of which tetanic symptoms again made their appearance. Acting upon the experiments of Schiff and v. Eiselsberg and without the knowledge of Bircher's experience, Victor

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[*] Hun, H. *New York Medical Journal*, January 12, 1895.

[†] *Deutsche med. Wochenschrift*, 1893, p. 1192.

[*] Schiff, M. *Untersuchungen über die Zuckerbildung in der Leber*, etc., Würzburg, 1859.

[†] Reverdin. *Revue médicale de la Suisse romande*, 1883.

[‡] Kocher. *Archiv für klinische Chirurgie*, Bd. xxix.

[#] Schiff. *Archiv für experimentelle Pathologie*, Bd. xviii; and *Revue médicale de la Suisse romande*, February and August, 1884.

[‖] Sammlung medic. Schriften, herausgegeben von der *Wiener klin. Wochenschrift*, 1890, No. 4.

[△] Kocher in a letter to Horsley. *British Med. Journal*, July 26, 1890.

[◊] Bircher. Volkmann's *Sammlung klin. Vorträge*, No. 357 (March 5, 1890).

Horsley[*] made the proposition of implanting sheep's thyreoid in cases of myxœdema and cretinism. This was indeed done in a number of cases of cretinism, and all the operating surgeons reported an unmistakable improvement following the grafting of the thyreoid. Bettoncourt and Serrano,[†] however, have noticed a distinct improvement so rapidly as in twenty-four hours after the implantation. As in this short time certainly no vascularization of the implanted thyreoid could have taken place, the improvement could not have been due to the secretion of the gland, but to the absorption of its juice. Here the idea sprang up of the therapeutic value of the juice of the thyreoid. But to introduce thyreoid juice into the body it was not necessary to implant the body of the thyreoid and leave the process of extraction to the body of the animal; it is rather simpler to extract the juice and inject it into the animal. Moreover, the preparation of a thyreoid juice was not at that time a new departure; J. R. Ewald[‡] had used it some years before to study its effect upon normal animals. Of greater importance, however, were apparently the experiments by G. Vasale.[#] This investigator made intravenous injections of thyreoid extract into dogs whose thyreoid was removed; these injections prevented the outbreak of the tetanic condition. From this to subcutaneous injection was then only a short step, and this step was successfully taken by George R. Murray.[‖] He prepared a glycerin extract of the gland and injected it into a patient with myxœdema with a marvelous result. The news spread rapidly, and the experiment was repeated many times with uniformly favorable results. If we consider the methods of administration of medicine, then we find that the intravenous injection stands in the first place; next comes the hypodermic application, and in the last place we find the administration *per os*. Accordingly, we shall have to consider G. Vasale, who introduced the intravenous injection of thyreoid, as the real discoverer of the treatment of myxœdema with the thyreoid. But Vasale's communication remained apparently without any influence upon practical therapeutics; it was a biological experiment rather than a therapeutic measure. It was the surprising success of Murray which brought this new remedial agent to the attention of the physicians all over the world. His fame is well deserved.

The next important step, that of administration of the thyreoid by the mouth, was made by Howitz. He reported it at the Scandinavian Congress of Physicians, June, 1892.[△] This, however, remained practically unknown until the following October, when Mackenzie[◊] and Fox,[‡] both independently of Howitz and of one another, reported at the same time the favorable results they had obtained by the administration of the thyreoid *per os*.

The administration by the mouth seems to be now the universally accepted method.

You see, gentlemen, that the sweeping hypothesis of *similia similibus* had nothing to do with the birth and growth of the treatment of myxœdema with thyreoid. It was developed step by step by clearly preconceived biological experiments. By this method we should have arrived at all times at the same results. In no stage of its development had the thyreoid therapy profited by the hypothesis underlying the therapeutics of the animal extracts, or, more correctly, organ therapy. Therefore this sweeping hypothesis has no right to claim the effective treatment with thyreoid as a verifying consequence. Hence I say the mixing up of the thyreoid with the so-called animal extracts is unjustifiable and misleading. Through that the thyreoid therapy meets with an undeserved suspicion, and the organ therapy receives an unfounded support.

In this connection allow me to make the following remarks: The therapeutic principle of the thyreoid differs in an important point from even the most promising of all the animal extracts, the antitoxines; the effect of the thyreoid is not destroyed by digestion or heat, while that of the antitoxines is. One point, however, is common to both, and that is the method by which they were discovered. It was not the pathological anatomy, not the cellular pathology, not the all-dominating histology, nor the chemistry, nor the pharmacology which brought out the marvelous results; it was the biological experiment which gave us truly specific remedies—this should be a lesson to the thinkers, the philosophers in medicine!

The thyreoid is a specific remedy for such pathological conditions as are due to the lack or insufficient action of the thyreoid. We know now three such types: 1. Naturally acquired myxœdema of the adult. 2. Myxœdema acquired by operation, or cachexia strumipriva. 3. Congenital myxœdema and myxœdema acquired in early infantile life, or cretinism. In all the three forms of myxœdema the administration of the thyreoid effects an undoubted improvement. It is my task to-night to deal with the naturally acquired myxœdema of the adult.

Since I spoke to you on this subject, *i. e.*, in the course of last year, many more cases of myxœdema have been reported in which all recognizable symptoms of the disease were removed by feeding the patient with thyreoid. There are also a few unsuccessful cases on record, but we have sufficient reason to doubt the value of such reports. The literature contains statements which are capable of shedding light upon such reports. Starr[*] tells us of a case which had been treated by a physician with thyreoid for about eight months without any success, while in the hands of Starr the same patient rapidly improved under the administration of the thyreoid tablets of Burroughs, Wellcome, & Co. In a recent paper of Ewald's[†] it is stated that in one case the use of a thyreoid extract for four months gave hardly any results, while the tablets mentioned soon produced an unmistakable effect. Of great interest is the report of Marie and Guerlain.[‡] A patient had been given "thyreoid" for a long time without any success. A microscopic examination revealed the fact that the patient had received all along the submaxillary gland. The real thyreoid soon brought the desired result. This reminds one of the experiments of Kaufmann,* which in the belief of this author should refute the assertions of Schiff concerning the effect of the removal of the thyreoid in dogs. Fuhr † has shown that Kaufmann constantly removed only the submaxillary gland. It seems that we are indeed justified in assuming that in cases where the thyreoid fails to improve, either the diagnosis of myxœdema was not correct or there was somewhere a fault in the method of administration.

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[*] Horsley. *British Med. Journal*, Feb. 8, 1890.

[†] *La Semaine méd.*, Aug. 13, 1890.

[‡] Ewald, J. R. *Berl. klin. Wochenschrift*, 1887 (March 14, etc.).

[#] Vasale, G. *Centralblatt für med. Wissenschaft*, 1891, p. 14.

[‖] Murray. *British Medical Journal*, Oct. 10, 1891.

[△] *Lancet*, 1892, ii, p. 1213.

[◊] Mackenzie. *British Medical Journal*, 1892, ii, p. 940.

[‡] Fox. *Ibid.*, p. 941.

[*] Starr, M. A. *Medical News*, Dec. 15, 1884.

[†] Ewald. *Berl. klin. Wochenschrift*, 1895, No. 2.

[‡] *Medical Record*, 1894, ii, p. 310.

By the term "cure" is, of course, not meant a radical cure. On the contrary, all reports agree that a continuation of the thyreoid treatment, though at longer intervals, is required to keep up the good results attained. And it is very plausible. The normal thyreoid secretes constantly and continually an indispensable substance; after removal of the thyreoid the substitute should also be administered constantly and perhaps also continually. The thyreoid juice, however, has apparently a cumulative effect—*i. e.*, a residue of the thyreoid principle present in the body of the animal is not excreted at once. An administration of the thyreoid at longer intervals, therefore, might be sufficient to produce a continual effect. As to the length of the interval between the accomplished improvement and the starting again with some administration of thyreoid, opinions seem to differ. Some speak even of a whole year. This seems to me to be quite exaggerated. The normal storage of the thyreoid principle in the body certainly becomes exhausted in a short time. The tetanic symptoms appear in animals and man only a few days after the removal of the thyreoid. I have seen in a dog fed on raw meat the typical convulsions appear in forty-eight hours after the operation; the normal surplus was consumed in two days. There are, however, many outside factors capable of determining the time in which the accumulated thyreoid becomes exhausted—for instance, the character of the food and the season of the year. According to my experience the myxœdema patient requires in winter larger doses repeated at shorter intervals than in summer. Horsley's experiments on the influence of the temperature upon the outbreak of cachexia strumipriva in donkeys and sheep are well known. But I shall not dwell here any longer on these points.

It is generally stated that an increase in weight is an indication to start the treatment again. This is certainly not correct for all the cases. An increase in weight is often observed while still continuing the thyreoid in full doses, especially after the first rapid loss in weight; the improved health is the cause of gaining normal flesh. I have seen it in my own experience, and similar statements are made by Leichtenstein ‡ and others. I shall rather put forward the complaint of *feeling cold* as a sure indication of the beginning of the return of myxœdema. I have noticed the appearance of this complaint sometimes even before the weight has shown an increase, and a few small doses of thyreoid were sufficient to soon do away with this chilliness. The chilliness is an important symptom in myxœdema, and is independent of the changes in the skin or the subcutaneous tissue.

In reference to the preparations and the mode of administration of the thyreoid, it may be stated that at present the powdered substance of the thyreoid is almost universally in use. We can hardly speak any more of thyreoid extracts. In this country the preparations of three firms seem to be in vogue—Parke, Davis, & Co., Armour & Co., and the London firm of Burroughs, Wellcome, & Co. The latter offer the thyreoid exclusively in the convenient form of tablets.* In the English and German literature we often read of these tablets; in this country also they are preferred by some. My own experience has been less favorable—the effect was inconstant. Of Parke, Davis, & Co.'s preparations, I have employed so far only the desiccated powder. In the myxœdema case that I reported to you last year † I had again and again to return to the powder of Parke, Davis, & Co., which always brought the desired effect. Of Armour's preparations, I have used both the powder and the tablets. The latter have not given me satisfactory results. The tablet form is not reliable, anyhow; they often do not dissolve, and then again it might happen that an accumulated large number would accidentally dissolve at once and produce a dangerous condition. The powder is furthermore preferable because you can prescribe different quantities at your own will, while fractions of the small tablets can certainly not be measured exactly. The powder is administered in wafers or in capsules, if it is simply put into the capsules without being previously made into a mass. It should be borne in mind that the weights of the preparations of the different firms have a different meaning. Parke, Davis, & Co. prepare fifteen grains of powder from one thyreoid, while Armour & Co. prepare only six grains. Thus one grain of Armour & Co.'s powder is equal to about two grains and a half of the powder of Parke, Davis, & Co. For the tablets of Burroughs, Wellcome, & Co. it is maintained that they represent one sixteenth of a thyreoid and contain five grains of the substance of the gland. Then one tablet would be about equal to one grain of the powder of Parke, Davis, & Co., and from an eighth of such a tablet Bramwell has seen good results!

The dose of thyreoid is by no means an indifferent question. There can be no doubt that dangerous conditions may be brought about by feeding with thyreoid; there is no lack of such reports in the literature. But such states were produced by overdosing, and occurred oftener in the beginning of the new era than they now occur. The dangerous conditions are characterized by stenocardiac attacks, with very rapid and hardly perceptible pulse and great prostration; the extreme feebleness sometimes continues for days. I am of the opinion that dangerous conditions like these can positively be avoided if the start and progress of the treatment are made with sufficient care. Not more than a fifteenth of a thyreoid (about equal to a grain of the powder of Parke, Davis, & Co.) three times a day should be the initial dose. The increase should be gradually and carefully made under the constant guidance of pulse and temperature. The worst attack which could be met with under such careful procedure would consist of vomiting, præcordial oppression, myasthenia, and tremor. These attacks are easily remedied by discontinuing the use of the thyreoid and by rest in bed for a few days. Under slow and moderate treatment success is also sure, though it is attained a little later; for this we are sufficiently compensated by the well-being of our patient. Certain disadvantages, however, are even under the most conservative treatment unavoidable. Some acceleration of the pulse, fatigue, and slight tremor of the limbs are among the earliest unpleasant manifestations; headaches, and pains in the entire body, follow soon; a vexing urticaria appears in some persons after a few small doses of thyreoid. All these complaints, however, are accessible to treatment. Iron and strychnine for the general weakness, salicylate of sodium and phenacetine for the pains and aches, are very effective. For the urticaria I have found pilocarpine (a sixteenth of a grain three times a day) very satisfactory.

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* Kaufmann. *Archiv für experimentelle Pathologie*, Bd. xviii.

† Fuhr. *Archiv f. exper. Pathologie*, Bd. xxi.

‡ Leichtenstein. *Deutsche med. Wochenschrift*, 1894, p. 932.

* Tablets similar to those of Burroughs, Wellcome, & Co. are now also put on the market by Fairchild Brothers & Foster.

† *Med. Monatschrift*, April, 1894.

I wish to add here briefly one more observation I believe I have made. If a sure working dose is given without interruption for a long time its effect seems to be gradually diminished; chilliness, increase of weight, obstipation, etc., gradually make their appearance while the same dose of thyreoid is still continued. If, then, the administration of the thyreoid is discontinued for some time, we observe at the resumption a distinct effect even from doses smaller than were given before the intermission. This looks as if the body got accustomed to the reaction of the foreign thyreoid introduced. On the other hand, the body certainly does not lose its susceptibility to the products of its own thyreoid.

The discussion of the thyreoid treatment of surgical myxœdema does not belong to the province assigned to me. I also have to refrain from entering into a consideration of congenital myxœdema, as it belongs to the department of neurology. I wish, however, to avail myself of the present opportunity for reporting a case of cretinism now under my care:

L. T. is now a boy of sixteen years. He was born in London of healthy parents not related to each other. When four weeks old he had his first attack of convulsions, which thenceforth never left him. A number of neurologists pronounced him to be a typical idiot. When I saw him for the first time, about a year ago, he presented about the following status: His size was that of a boy of about eleven or twelve years, but abnormally bulky; he had a weight of one hundred and twenty-five pounds. Face, neck, body, and especially the limbs, were covered with œdematous swellings; a digital pressure did not leave any mark. Both mammæ were of an enormous size, like that of a fully developed fat woman. The tongue protruded between the decayed teeth. The cranium was not abnormally shaped. He seemed neither to see nor to hear anything; a closer observation, however, revealed the fact that the senses were not destroyed; it was only a lack of perception. He did not fix anything; his gaze was vacant; no sound however loud seemed to attract his attention. His vocabulary consisted of one word, "mimi," which was often repeated without any meaning. He often seemed to be in a rage, but hit only himself. He was greedy, but apparently without any preferences; was constantly constipated; the fæces were tapelike in shape. He urinated in his clothes. There had been nearly every five minutes clonic or tonic convulsions, especially of the muscles of the neck, and even in the intermission the head was nearly in constant movement, but it seemed to have a voluntary character. Besides, he had every day quite a number of real epileptic fits; he fell quite heavily, and was injured many a time, of which the scars on his head are telling proofs. My diagnosis was sporadic cretinism. It was impossible to ascertain whether the thyreoid still existed, on account of the considerable swelling of the neck. I ordered the thyreoid powder of Parke, Davis, & Co., which was given to him in his food. The first success was a striking one. From the second day of the administration of the thyreoid there was no longer even a trace of the former convulsions. The weight was reduced to less than a hundred pounds, the bowels started moving regularly, and with the fæces of normal shape. In the third week, however, the boy began to show an extreme restlessness; he screamed and yelled constantly, clung to the mother, and appeared to be in great distress. It was apparent that he was suffering great pain. The parents had given him much more of the preparation than I had ordered—the father of the cretin is a druggist. I then changed to the tablets of Burroughs, Wellcome, & Co., of which three a day were given. The restlessness indeed subsided, but the weight began to increase again. The further treatment varied in many ways; but I shall not bother you with the unimportant details of the further course of this case, but will give you a short account of the boy's present condition. It is a year now that he has been under nearly constant thyreoid treatment; he now gets Armour's tablets; powders or capsules he refuses to take. He looks now rather slender, only the right leg is somewhat thick yet. In front of the trachea there is a striking recess, and no trace of a thyreoid can be discovered. He has grown about an inch. His bowels move rather frequently; the same is true of his urinating. The parents maintain that there is an odor about the boy which resembles very much the odor of the thyreoid. In the last few weeks some slight twitchings have appeared now and then. Mimi is still the only word of his vocabulary, but it often seems that he associates some sort of a meaning with it. There can be no doubt now that he perceives objects around him. He follows with his eyes when he is shown something, and turns his head when he hears a noise, or even when he is spoken to; but the fixed attention lasts only a couple of seconds. He caresses his mother when he wants something of her. He goes to his father when his mother sends him there and promises to fetch cake for him. At the table he picks the meat out from among the potatoes; he rejects the pits of the plums; he has a preference for cake, knows where it is to be found, and draws his mother thither, but does not take any himself. He plays with the children, strikes the girl, who does not retaliate, and takes care not to engage in a quarrel with the boy. In short, there are traces of newly acquired intelligence, but they are as yet indeed only traces, and in no proportion to the striking physical change.

The primary symptoms of myxœdema may be divided into three groups: changes of the skin, changes in the subcutaneous tissue, and changes in the normal activity of the nervous system. Under treatment with thyreoid the symptoms of all the three groups disappear. The question naturally arises whether these pathological conditions could not be benefited by the thyreoid treatment even when each group is found alone in other diseases than myxœdema. Thus the influence of the thyreoid has been studied on certain forms of diseases of the skin, on obesity, and on certain diseases of the nervous system. On the latter category we shall hear a competent report in the neurological review. Of the use of thyreoid in psoriasis and other diseases of the skin I have very little personal experience, and might be allowed to abstain from discussing it; the more so as we have in our society competent dermatologists who will probably take part in the discussion. It remains for me to make a few remarks on the use of the thyreoid in obesity. There are in literature already quite a number of reports on our subject. On the basis of these reports, as well as of my own not very small experience, I venture to say that the thyreoid is the best remedy we possess for obesity. I do not recollect of having read of a failure recorded in the literature I have had an opportunity to look over. I myself have had quite a number of very good results, but I have also to record one failure. It was in a young girl who constantly grew stouter; she has taken the thyreoid in quite large doses for some time; it made her sick, but she did not lose even a quarter of a pound. I shall record here also a failure of another kind. In a woman of three hundred and eighty-seven pounds the smallest dose of thyreoid constantly brought on such profuse diarrhœa that I had to discontinue the use of it. I shall, however, state right here that in the successful cases there was no diarrhœa; the reduction, therefore, can not be ascribed to that. In nearly all my cases so far I have avoided reducing the patient more than twenty pounds. I dispensed the thyreoid with great care. I began with one grain (Parke, Davis, & Co.) three times a day, and increased gradually to three grains three times a day, rarely overstepping this last limit. The patients must be impressed with the necessity of sticking to the directions, as there is a great inclination among all persons who have once noticed the efficacy of the remedy to overstep rapidly the prescribed dose. Besides the thyreoid no other measures were prescribed. The loss was seldom more than a pound a week. Only in one case of obesity combined with psoriasis, the patient, who took ten grains (Parke, Davis, & Co.) a day, lost twenty pounds in the first two weeks. My patients were during the entire treatment in an excellent condition in every respect. Two patients who have not taken any more of the thyreoid for a good many months are still in the same favorable condition.

All patients with obesity who have been treated with thyreoid have noticed as early as during the first two days of treatment a distinct relief in their breathing, and nearly constantly also an improvement in the palpitation, if there had been any before the treatment, and this before any lessening in the weight could be observed. I have become impressed with the idea that apparently the very first disappearance of fat in consequence of the first doses of the thyreoid administered occurs in the heart. Hence the improvement in the breathing and palpitation. If my theory is correct, then there is a clear indication to treat cor adiposum with thyreoid. Of course, only small doses come into consideration. When larger doses are used, the heart may be affected either by the considerable loss of substance which the entire body (and the heart) sustains, or perhaps also by a direct toxic effect of the thyreoid upon the heart. The cases of fatty heart I have so far had an opportunity to treat with thyreoid have been of a moderately severe type, but the results have indeed been very satisfactory. I shall illustrate this by a brief report of one of my cases:

Mrs. P., a married lady of forty-eight years, had a weight of one hundred and ninety-two pounds, and was below middle height. Her weight had increased gradually for years, and made her feel very uncomfortable. She was suffering, as she put it, with asthma. In the course of the winter of 1893–1894 her condition became alarming. She could hardly walk the stairs; the slightest exertion made her breath very short and produced severe palpitation. She was constantly bathed in perspiration. She could stay in bed only in a half-reclining position. An examination revealed clear but hardly audible heart murmurs; the size of the heart could not be ascertained, on account of the very large breast. In the lungs there were some sibilant and moist râles. Pulse frequent, small, and soft. Extensive œdema of both legs; urine normal. Diagnosis, fatty heart. I gave her thyreoid (P., D., & Co.), two grains a day. On the very next day an improvement in her breathing could be distinctly noticed. The patient was enthusiastic about the remedy. Within the next few days she sent word that I should not call; she intended to call on me. She came after a week, but with complaints of tremor, weakness, headache, etc. The secret was, she increased, against my strict orders, the dose to ten grains daily! It was only with difficulty that I could induce the patient to discontinue the use of the medicine for a few days. The thyreoidism disappeared soon, and we again started with two grains daily, increasing it gradually to six grains a day, and giving her at the same time all along a mild preparation of iron. The patient lost eighteen pounds in three months and a half, and the œdematous swellings of the limbs disappeared entirely. She does not experience any more difficulty in breathing, palpitation, fatigue, or profuse perspiration. She goes up and down stairs in her house many times a day; walks long distances; attends to her duties in and outside of the house; her appearance and behavior are entirely changed. Mrs. P. has not taken any thyreoid for the last eight months; her condition, nevertheless, continues to be favorable. She did not cough even once during the entire winter, while in preceding years she hardly stopped coughing all winter.

66 East 124th Street.

A REPORT ON SALOPHEN.

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The advocate of a new remedy must bear the burden of proof. To insure its reception it must be shown that a new drug not only fulfills indications and meets conditions as well as those already in use and perhaps favorably regarded, but also that it is more efficient or freer from disadvantages which attend the use of its rivals. The presentation of salophen to the medical profession as an antirheumatic meets precisely these difficulties, and the object of this paper is to report its use and the clinical results obtained in the actual practice of hospital wards. The test seems severe enough, and the report of the cases, especially when compared with some in which the older remedies have been used, offers a fair comparison.

The drug itself is a combination of salicylic acid and an innocuous phenol. Thus it has as its base the substance which has come to be considered most useful in rheumatic affections, and as an adjuvant one of well-known antipyretic properties.

Acute rheumatic fever may present such distressing symptoms, may be complicated in so many and often serious ways, and may be of such duration, that one naturally seeks for a remedy which will—

1. Relieve promptly the acute suffering from both local and constitutional conditions.

2. Effect a limiting or curative influence upon the disease.

3. Prevent complications.

4. Be well borne by the patient.

5. Be agreeable in administration.

The cases reported here are taken at random from those occurring in the wards of the Presbyterian Hospital, New York. The cases reported occurred in the service of Dr. Andrew H. Smith, to whom I am indebted for permission to publish the report, and who coincides perfectly with the conclusions. In many instances the records are incomplete, but such as can be obtained are presented. Cases have been chosen in which other diseases were not concomitant, in which acute local conditions and pyrexia were present, and which were in fair physical condition. They will be considered with reference—

1. To the rapidity with which the joint symptoms were relieved and the temperature reduced.

2. To the duration of the disease.

3. To the occurrence of complications.

4. To the effect of the administration of the drug upon the stomach and the kidneys, and with regard to the constitutional toxic effects of salicylic acid.

Either fluid or nitrogenous diet was used.

In all cases calomel in doses of from three to five grains was administered, followed by a saline purge. The drug was given dry upon the tongue, followed with water or milk. In most of the cases an alkali was given, either sodium bicarbonate or a combination of several of the potassium salts, and, in some, morphine or immobilization of the joints was used in the first twenty-four to forty-eight hours for relief of the acute joint tenderness. As a rule, some note has been made of the sex and age, of previous attacks of the disease, the duration of the trouble, the joints involved before admission, the physical condition and temperature of the patient at that time, in the hope that thus a better picture might be drawn of the severity of the affection and of the general condition of the patient. This will be useful in estimating the efficacy of the drug, and in comparing it with other forms of the salicylates.

1. Male, twenty-one years of age; one previous attack. Duration of illness three weeks. Temperature on admission, 102° F. Physical examination negative. Joints involved: ankles and knees. Treatment, a hundred and twenty grains of salophen in twenty-four hours. Temperature normal, and all local symptoms relieved on the fifth day. Salophen reduced to sixty grains. Duration of treatment nine days.

2. Male, thirty years of age; no previous attacks. Duration of illness three days. Temperature on admission, 104·6° F. Physical examination negative. Joints involved: ankles, knees, left wrist, right shoulder, and right metacarpals. Treatment, a hundred and twenty grains of salophen daily. Temperature normal on the ninth day. Salophen reduced to ninety grains a day. On the eleventh day it was reduced to sixty grains; on the twelfth day the patient was allowed a diet and to sit up. Duration of treatment twenty-five days.

3. Male, seventy years of age; two previous attacks. Duration of illness two days. Temperature on admission, 102° F. Physical examination: pulmonary emphysema. Joints involved: right knee and both ankles. Treatment, ninety grains of salophen daily. Temperature normal on the fifth day. Treatment was discontinued two days later. Duration of treatment twenty-four days.

4. Male, thirty-three years of age; no previous attacks. Duration of illness six days. Temperature on admission, 101·6° F. Physical examination negative. Joints involved: ankles and wrists. Treatment, a hundred and twenty grains of salophen. Two days later the symptoms were relieved. Temperature normal on the fifth day. Patient was allowed a diet. Next day he was allowed to sit up. Duration of treatment twelve days.

5. Male, forty years of age; one previous attack. Duration of illness a month. Temperature on admission, 103° F. Physical examination revealed cardiac hypertrophy, emphysema, and bronchitis. Joints involved: knees, hips, shoulders, and elbow; no effusion. Treatment, a hundred and twenty grains of salophen a day. Temperature normal on the eleventh day. Salophen reduced to forty-five grains on the eighth day. On the thirteenth day treatment was discontinued. On the fourteenth day patient was allowed a diet, and sat up out of bed. Duration of treatment nineteen days.

6. Female, twenty-nine years of age; several previous attacks. Duration of illness seven days. Temperature on admission, 102·8° F. Physical examination showed mitral regurgitation. Joints involved: knees, right wrist, and ankle; no effusion. Treatment, a hundred and twenty grains of salophen daily. In forty-eight hours the symptoms were almost entirely relieved. Temperature normal on the seventh day. On the eighth day a diet was allowed. On the tenth day the salophen was reduced to ninety grains daily. On the twelfth day the salophen was discontinued. On the fifteenth day the patient was allowed to sit up. Duration of treatment twenty-two days.

7. Male, thirty-eight years of age; one previous attack. Duration of illness two weeks. Hips, shoulders, and right wrist have been painful. Temperature on admission, 102·2° F. Physical examination negative. Joints involved: ankles and knees; some effusion in each. Treatment, a hundred and twenty grains of salophen. In forty-eight hours the patient was comfortable, with a temperature of 100° F. Temperature normal on the fourth day. On the sixth day patient allowed up. Duration of treatment sixteen days.

8. Female, thirty-five years of age; no previous attacks. Duration of illness five weeks. Hands, knees, ankles, and toe joints affected. Temperature on admission, 102·8° F. Physical examination negative; a slight febrile albuminuria was present. Joints involved: hands, feet, and knees; no effusion. Treatment, a hundred and twenty grains of salophen. In twenty-four hours the pain was greatly relieved. Temperature normal

on the fifth day. Salophen reduced to forty-five grains. On the sixth day salophen was discontinued. On the seventh day the patient was allowed a diet and to sit up. Duration of treatment eleven days.

9. Male, thirty-five years of age; no previous attacks. Duration of illness three weeks. Right knee and left elbow involved. Temperature on admission, 103° F. Physical examination negative. Joints involved: right wrist, left ankle, and knees. Treatment, a hundred and twenty grains of salophen daily. On the third day the pain was much relieved. On the fourth day the patient was quite comfortable. Temperature, 99·8° F. On the sixth day salophen was discontinued. Temperature normal on the seventh day. On the eighth day the patient was allowed up. Duration of treatment fifteen days.

10. Male, eighteen years of age; no previous attacks. Duration of illness four days. All major joints involved. Temperature on admission, 103·8° F. On physical examination the heart showed hæmic murmurs; patient very anæmic and in poor condition. Joints involved: ankles, knees, right hip, wrist, elbow, and shoulder. Treatment, a hundred and twenty grains of salophen daily. Temperature normal on the sixth day. On the seventh day no local symptoms present. Duration of treatment five weeks.

11. Male, twenty-four years of age; no previous attacks. Duration of illness two weeks. Left knee, ankle, and right arm involved. Temperature on admission, 102·2° F. On physical examination the heart showed aortic and mitral diseases. Treatment, ninety grains of salophen daily. Temperature normal on the sixth day. Patient up on the tenth day. Duration of treatment thirteen days.

12. Female, twenty-two years of age; no previous attacks. Duration of illness, one week. Knees and ankles involved. Temperature on admission, 103° F. On physical examination the heart showed some hæmic murmurs; very anæmic. Joints involved: left shoulder, knees, wrists, and metacarpals. Treatment, a hundred and eighty grains of salophen daily. During the first two days a little morphine was used. Temperature normal on the fourth day, with no pain. On the ninth day treatment with salophen was discontinued. Duration of treatment nineteen days.

13. Male, nineteen years of age; one previous attack. Duration of illness three weeks. Joints affected: ankles and knees. Temperature on admission, 101·5° F. Physical examination showed cardiac hypertrophy and mitral regurgitation. Joints involved: knees subacutely. Treatment, a hundred and sixty grains of salophen daily. Temperature normal on the fourth day. On the sixth day all symptoms relieved. On the twelfth day the patient was allowed up. Duration of treatment sixteen days.

14. Male. No history. Temperature on admission, 101·8° F. Physical examination shows some mitral regurgitation. Joints involved: right knee and left shoulder acutely, other joints tender. Treatment, a hundred and twenty grains of sodium salicylate daily. Temperature normal on the sixth day. On the tenth day medication was discontinued. On the fourteenth day the patient was discharged. Eleven days later the patient returned, having had a relapse, with a temperature of 102° F. Ninety grains of salophen was then given, and on the fourth day the temperature was subnormal. On the eleventh day treatment was discontinued and the patient made a good recovery. Duration of treatment fifteen days.

15. Female, eleven years of age; no previous attacks. Duration of illness five days. Left ankle and right wrist affected. Temperature on admission, 100·5° F. Physical examination negative. Joints involved: left knee, ankle, and right hand. Treatment, sixty grains of sodium salicylate daily. Temperature normal on the twelfth day. Duration of treatment twenty-three days.

16. Male, eighteen years of age; one previous attack. Duration of illness four days. Knees and ankles affected. Temperature on admission, 101·2° F. Physical examination negative. Joints involved: knees. Treatment, a hundred and twenty grains of sodium salicylate daily. Temperature normal on the eighth day. Duration of treatment eleven days.

17. Male, forty-three years of age; no previous attacks. Duration of illness a week. Right knee affected. Temperature on admission, 101·2° F. Physical examination of the heart shows some mitral disease. Joints involved: right knee, with effusion. Treatment, a hundred and twenty grains of sodium salicylate daily. Temperature normal on the sixth day, but considerable gastric irritability was experienced, and there was rather marked reduction of the amount of urine passed. Duration of treatment nine days.

18. Female, thirty years of age; numerous previous attacks. Duration of illness five weeks. Knees, ankles, and elbows affected. Temperature on admission, 100·8° F. Physical examination negative; urine shows albumin and casts. Treatment, a hundred and twenty grains of sodium salicylate daily. Temperature normal on the fifth day, but rose afterward to 100° F., with continuance of symptoms subacutely until the tenth day. Ol. gaultheriæ was then given, with relief of symptoms. Duration of treatment fifteen days.

19. Female, sixteen years of age; no previous attack. Duration of illness three weeks. Ankles and knees affected. Temperature on admission, 103° F. On physical examination the heart showed some hypertrophy and mitral disease. Treatment, a hundred and twenty grains of sodium salicylate. Temperature normal on the eighth day. Treatment discontinued. Two weeks later, after subacute symptoms, there was a relapse, with a temperature of 102·8° F. Treatment resumed. Temperature again normal in four days. Duration of treatment fifty days.

20. Male, twenty-five years of age; two previous attacks. Duration of illness one day. Knees affected. Temperature on admission, 101° F. Physical examination negative. Urine shows a little albumin. Joints involved: knees, with effusion. Treatment, a hundred and twenty grains of sodium salicylate daily. Temperature normal on the twenty-second day. Duration of treatment forty-three days.

21. Male, forty-nine years of age; three previous attacks. Duration of illness ten days. Right ankle and left knee affected. Temperature on admission, 101° F. Physical examination negative. Urine shows albumin and casts. Joints involved: knees, elbows, and right shoulder. Treatment, ol. gaultheriæ, ♏cxx daily. On the twelfth day gastric disturbance was noted, and the disease had progressively invaded other joints. On the fourteenth day temperature normal. Duration of treatment twenty-six days.

22. Female, twenty-eight years of age; no previous attacks. Duration of illness two weeks. Toes and knees affected. Temperature on admission, 100·5° F. Physical examination negative. Joints involved: left foot and knee. Treatment, ol. gaultheriæ, ♏lx daily. Temperature normal on the twelfth day. Still some joint tenderness. Patient continued to have subacute symptoms, which finally yielded to the iodide of potassium and colchicum. Duration of treatment forty-seven days.

23. Female, twenty years of age; no previous attacks. Duration of illness four days. All the major joints affected. Temperature on admission, 102° F. Joints involved: knees, ankles, shoulders, wrists, and right knee, with effusion. Treatment, ol. gaultheriæ, ♏cxx daily. Temperature normal on the seventh day, but afterward ranged from 99° to 101° F., with subacute

symptoms until the seventeenth day. Duration of treatment twenty-two days.

24. Male, twenty-one years of age; no previous attacks. Duration of illness six weeks. Ankles affected. Temperature on admission, 102° F. Physical examination negative. Treatment, ol. gaultheriæ, ♏ cxx daily. History incomplete. Patient seems to have done well, but had a relapse after leaving the hospital. Duration of treatment twenty days.

25. Female, forty-two years of age; one previous attack. Duration of illness three weeks. Right elbow and left wrist affected. Temperature on admission, 102° F. Physical examination negative. Urine shows albumin and casts. Joints involved: right elbow, left wrist, and hip. Treatment, ol. gaultheriæ, ♏ cxx daily. On the third day considerable improvement in local symptoms, but tinnitus aurium developed and the treatment was discontinued. It was resumed a few days later in smaller doses. Temperature reached 99·2° F. on the eleventh day, and was then about 100° F. for seventeen days, with more or less joint pains. Salophen was then given in the usual dose. On the fifth day the temperature was normal, and the local symptoms were relieved.

In addition, cases can be recalled which are at present under treatment. In one of these, in which ol. gaultheriæ was used, marked delirium with irregular and weak heart action developed; in two others, in which sodium salicylate was used, on the tenth day the temperature was still somewhat elevated, and more or less joint tenderness persisted.

Conclusions.—In reviewing the cases just enumerated, it will be seen—

1. That in almost every case improvement has been rapidly effected, and the average length of time for reduction of fever has been six days, as against eight days for the ol. gaultheriæ and nine days for sodium salicylate.

2. That no complication more serious than the extension of the process to other joints was observed.

3. That the average length of hospital treatment has been: under salophen, eighteen days; for ol. gaultheriæ and sodium salicylates, each twenty-five days approximately.

It should be noted that this in every case includes after-treatment with iron and tonics.

4. That in no cases have gastric, renal, or constitutional disturbances been observed, while all have been developed under the other drugs.

When the disparity in the number of cases reported is remembered, this seems a clear point in favor of the new remedy, thirteen cases of salophen having been collected, as against seven of salicylate and five of gaultheriæ.

Finally, as it is exceedingly easy of administration and is not at all unpleasant to the taste, it answers the last condition demanded.

There is one objection which can be made to its use, and that is a valid one, especially in hospital practice, viz., that it is expensive. It is to be regretted that in these cases the data as to the duration of treatment with the drug are not exact enough to warrant a conclusion as to the relative amount used. From the margin in its favor in the entire duration of ward treatment in these cases perhaps the objection could be met.

It seems fair, however, to assume that in salophen we have an agreeable, efficient, and safe antirrheumatic, thus acknowledging for it three important qualities which can not always be counted upon in other forms of salicylic acid.

SEVERE PAIN AND SPASM OF INFLAMMATORY RHEUMATISM OF THE ANKLE RELIEVED BY IMMOBILIZATION OF THE JOINT.

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Having read the very interesting and instructive paper on the treatment of Sprained Ankles by Dr. V. P. Gibney, of New York, published in the *New York Medical Journal* on the 16th of February, 1895, it occurred to the writer that it might be of interest to the profession to know of a most excellent result recently obtained in a very severe and painful case of inflammatory rheumatism of the ankle and foot by applying the method of treating sprained ankles, as advocated in the paper above referred to, together with complete immobilization of the joint by means of a plaster-of-Paris case.

On November 18, 1894, I was consulted by Dr. S. C. Busey, of this city, regarding a case of inflammatory rheumatism of the ankle and foot that was under his care, and which up to that time had baffled all attempts to produce any permanent relief of the pain and spasm about the offending joint.

The patient, a physician of middle age, was attacked with rheumatism, soon localizing itself in the left ankle and foot, five weeks previous to the consultation. He had had a very thorough course of treatment, consisting of the usual antirrheumatic remedies, with little if any amelioration of the most distressing symptoms—pain and spasm.

Still the foot and ankle continued to swell, pain and spasm to increase, until at the time that I first saw him the foot was at least one third larger than its fellow. Pain was excruciating and had only been relieved by morphine, while all the muscles of the whole limb could be easily thrown into a state of clonic spasm by the least attempt of passive motion of a single toe, or by the least jar to the patient's bed. So easily was this condition of clonic spasm produced, and thereby causing excruciating pain, that the patient dreaded the approach of any one toward his bedside; he would at once begin to remonstrate with any one who attempted in any way to move or change the bedclothes. He had remained in one position until there was marked tenderness about the most dependent points of pressure on the side of the body with the lame foot.

All the normal depressions about the malleoli were obliterated, and, as the swelling extended from about two inches above the malleoli to the tips of the toes, the arch of the foot presented very much the appearance of a typical flat-foot, which did not exist, however, for after the swelling had subsided the arch of the foot was found to be perfectly normal. Upon close inspection there was found to be but very little synovial fluctuation, and that just under the internal malleolus. It was plainly seen that the swelling was due to œdema and infiltration of the peri-articular structures caused by the rheumatic inflammatory process, which had at that time continued unabated in spite of the very thorough medical treatment above referred to.

The next most prominent feature of this case was the very marked atrophy of both calf and thigh muscles of that limb.

This case illustrates to my mind most beautifully what is called by Sir James Paget "reflex atrophy," being caused by disturbance to the trophic centers by the reflex spasm. The atrophy in this case could in no way be accounted for from non-use of the limb, for the patient had been confined to bed from the first.

The temperature of the patient had averaged daily from 100° to 102° F.

Upon inspection I at once concluded that this was a case that would be benefited by strapping the foot and ankle with strips of adhesive plaster after the manner that is used at the dispensary of the Hospital for the Ruptured and Crippled, New York, as advocated by Dr. Gibney in the paper above referred to. This method I had seen give most excellent results during my connection with the staff of that institution.

This treatment was at once suggested, together with immobilization of the foot with a plaster-of-Paris case, and was readily agreed to by both the patient and his physician. The strips of adhesive plaster were applied by starting the first one from the plantar surface of the base of the little toe and carrying it diagonally across the dorsum of the foot, ending it at the outer border of the heel. The second strip was started from the plantar surface of the base of the great toe, carrying it likewise diagonally across the dorsum of the foot, ending it at the inner border of the heel. This was continued, overlapping each strip about one half with the next one in order, until the whole foot and ankle were incased. Over this was applied a cheese-cloth bandage, next there was applied a thick layer of absorbent cotton extending from the tips of the toes to the tuberosity of the tibia, then a cheese-cloth bandage over the cotton; then finally the application of a snugly applied plaster-of-Paris case, extending from the tips of the toes to the tuberosity of the tibia, completed the dressing.

This dressing was applied about the middle of the afternoon; that night the patient, fearing that the local dressing would not give the much-desired relief, took a small dose of morphine, which, with the perfect rest afforded the foot, produced an excellent night's sleep. The next day he was very comfortable, being able to turn about in bed, a thing that he had not been able to do for several weeks. The second night after the foot had been immobilized he had a perfectly comfortable night's rest without morphine. Late in the afternoon of the second day I had a note from him, saying that his foot seemed loose in the plaster-of-Paris case, and that the pain and spasm had returned, but in a mild degree as compared with that of two days previously. About eight o'clock that evening I found just the state of things he had described in his note—foot loose in the dressings, and that there was a return of pain and spasm. This condition of affairs, I was quite sure before touching him, was due to the fact that, under the equable pressure that had been afforded the œdematous and infiltrated tissues by the adhesive plaster strapping, the swelling had subsided, and that the plaster case was no longer affording support. At once it was decided to remove all of the dressings and apply another set to fit the foot snugly in its changed condition; the patient did not agree readily to this, his extreme modesty (?) causing him to insist that he did not wish me to have so much trouble on his behalf; but to my mind it was clearly a case on his part of being satisfied with doing well as compared with two days previously; the true reason was, he dreaded my handling the foot, fearing the pain would return.

After all the dressings were removed the foot was found to be but very little larger than its fellow; it truly seemed wonderful that so much œdema and infiltration could have disappeared in so short a time—just a little over forty-eight hours. An entirely new dressing was applied as above described; that night the patient rested well, on the following day was able to sit up, and on the fourth day was able to get about the house on crutches. The second dressing was allowed to remain on one week, when it was removed, and, as all pain and spasm had disappeared, it was not renewed, but instead there was applied a circular stockinet bandage to the foot and leg, and the patient was instructed to use the foot in locomotion as much as he could without causing pain. From this time on there was a rapid and uninterrupted recovery, and in one week patient called at my office, when there was found some pain on passive motion about the medio-tarsal joint, but this gradually wore away under the influence of gentle massage and passive motion, and very soon thereafter the patient was able to resume his duties—that of a busy gynæcologist.

It should be mentioned that while the patient had been having a daily rise of temperature ranging from 100° to 102° F., after this dressing was applied the temperature never went above normal, no other antipyretic being used.

While the treatment of acute articular rheumatism by immobilization is not new, yet I do not believe it is in very general use. I have been unable to find a report of any cases thus treated. Professor Osler, in his *Practice of Medicine*, speaks of having seen very excellent results obtained in this very painful affection by German physicians from the use of immobilization by means of plaster of Paris. So far as I know no one has used the method of strapping the joints with adhesive plaster in connection with the plaster-of-Paris case. This is undoubtedly the most perfect way of obtaining absolute rest for the inflamed joint, and at the same time aids the absorption of the pathological secretion.

To be sure of relieving the spasm it is necessary to extend the dressings up to the popliteal space, for in this way you put at perfect rest all the calf muscles. Some who have not had an extensive experience in treating diseased joints may fear producing some degree of ankylosis by thus immobilizing joints; on the contrary, immobilization during an acute inflammatory process will limit any tendency to production of ankylosis. Rest to a joint will not produce ankylosis; the product of an inflammatory process is what produces ankylosis; therefore it must follow that anything that will cut short the inflammation must limit the ankylosis. It is a well-recognized fact in surgery that all wounds heal more kindly and rapidly under perfect rest.

The explanation that Dr. Gibney gives of the theory of this method of treating sprained ankles—viz., "the equable support given to the tendons and ligaments about the joints results promptly in the resolution of all effusion"—is surely the correct explanation, as is well evidenced in the case here reported.

Accepting this theory, I think all who will apply this method of strapping joints affected with acute rheumatism accompanied with pain and spasm, and then give perfect rest by means of a plaster-of-Paris case, will be rewarded with excellent results. This treatment in the early stage of the disease should be regarded as supplementary to the proper medical treatment.

No. 1305 H STREET, N. W.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

Published by
D. APPLETON & CO.

Edited by
FRANK P. FOSTER, M. D.

NEW YORK, SATURDAY, MAY 25, 1895.

THE TREATMENT OF ACUTE PNEUMONIA BY "ICE CRADLING."

IN the *British Medical Journal* for May 11th Dr. P. Blaikie Smith, of the Aberdeen Royal Infirmary, reports two cases in which he employed a method of treatment thus entitled with good results. The subject of ice cradling, he says, first attracted his attention about two years ago, when Dr. W. Soltau Fenwick reported encouraging results following the adoption of certain antipyretic procedures in cases of acute sthenic pneumonia. Out of one hundred and eight cases treated by sponging or ice cradling the mortality amounted to ten per cent., while the death-rate in five hundred and fifty-two cases treated in the ordinary way reached twenty-three per cent.

During the two months preceding his report Dr. Smith has had several cases of acute pneumonia in which his method of carrying out the treatment was practically the same as that described by Dr. Fenwick. The patients were placed in bed, and over the body and legs two large cradles were arranged extending from the shoulders to the feet. Six or eight small pails filled with ice were attached to the arches of the cradles; a thermometer was hung from the centre of the upper cradle, and both the cradles were covered, first with a blanket, then with a waterproof, and lastly with the usual covering. The pails were refilled as the ice melted, and the temperature of the air under the cradles, of the ward, and of the patients was taken every four hours; the temperature of the air under the blankets before the cradles were placed in position was also taken. This treatment was maintained until the patient's temperature became normal. These cases, says Dr. Smith, were examples of acute sthenic pneumonia, all of them complicated with pleurisy, and in one instance the pneumonia was double. All the patients recovered.

The first case was that of a man, aged thirty years, who was suffering from inflammation of the whole of the left lung, complicated with pleurisy. His pulse was 106, his respiration 41, and his temperature almost 103° F. Before the treatment was begun the temperature of the air under the blankets was 88°. When simple cradling had been employed for four hours it had fallen to 72°, after the employment of ice cradling for the same length of time it had fallen to 62°, and afterward during the treatment it ranged between 60° and 70° until the eighth day, when a crisis occurred, and the treatment was discontinued. With regard to the effect of the treatment on the bodily heat, says Dr. Smith, no marked depression was observed. The temperature declined gradually and in a somewhat fluctuating manner, the fall becoming more rapid as the crisis approached. The pulse and respiration rates, and their ratios to each other, seemed practically unaffected by the treatment.

The second case was that of a man with pneumonia of the apex of the right lung, complicated with pleurisy. The bed temperature was not taken in the beginning, but after the cradles had been in operation for two hours (without ice) it was 80° F. and the patient's temperature 105·4°. The pails were then filled with ice, and in two hours more the bed temperature had fallen to 73°, but there was no material change in the patient's temperature. For the next few days, until the eighth day, when the crisis took place, the ice cradling was maintained, with the results that the bed temperature fluctuated between 74° and 65°, and at the end of that time, the cradling having been discontinued, the thermometer under the blankets was 87°. In this case, says the author, the effect of the treatment on the patient's temperature was not at all evident. For three successive afternoons the thermometer rose to over 105°, the cradle temperature rising with it, but it finally fell rapidly on the eighth day to normal. With regard to the pulse and respiration rates, the influence of the ice seemed more apparent, for with a temperature of 105° the pulse was only 100 and the respirations ranged between 30 and 35 a minute.

Dr. Smith states that he is unable to discover any marked signs of improvement following the complete establishment of the treatment. There was no sudden fall of temperature, but, although there was no decided reduction in the temperature, the pyrexia (even in one case where both lungs were extensively involved) did not attain a great height, and he is inclined to think that the treatment exercised a restraining influence on the bodily heat. The pulse and respiration also seemed to be under restraint, for the heart's action was in no case unduly rapid or weak, and the breathing was never a source of anxiety. The patients, as a rule, felt comfortable under the treatment, although one or two complained of cold feet. In one patient inordinate perspiration was a marked feature, but the discomfort arising from this symptom disappeared at once with the establishment of the ice cradling.

Regarding the means by which the antipyretic results were brought about, the author thinks that a twofold influence was at work—that of the air under the cradles and that of the ice pails. It is doubtful, he says, which of the factors was the more powerful, although he inclines to the belief that the lowering of the temperature produced by the cradles was greater than that due to the melting of the ice.

Judging from what he has seen of the procedure, Dr. Smith is disposed to recommend ice cradling as a mild form of antipyretic treatment, suitable for sthenic cases of acute pneumonia, for it is easy of application, is not violent in its effects, is not fatiguing to the patient, and is readily carried out in any disease where a restraining influence on pyrexia and its attendant symptoms is desired.

THE MANDATORY TEACHING OF TOXICOLOGY TO URCHINS.

Dr. James H. Meehan, the health officer of the city of Niagara Falls, has sent us an important letter giving the text of a bill which at the time of his writing, May 15th, had been passed by both houses of the State Legislature and was in the Governor's hands. Dr. Mechan adds some judicious and wholesome comments of his own the spirit of which we shall endeavor to bring out in this article. What the Governor has done with this puerile enactment, we do not know, but we think he has too much sense to allow it to become a law. It prescribes that "the nature of alcoholic drinks and other narcotics," and their effects on the human system, shall be taught in not fewer than four lessons a week for ten or more weeks in each year in all the public schools to every pupil below the grade of the high-school second year. It also requires the regents of the university, in all their examinations in physiology and hygiene, to propound "a due proportion of questions on the nature of alcoholic drinks, tobacco, and other narcotics." It further commands that all pupils who can read shall study the subject from text-books, and that to those who can not read it shall be taught orally. Moreover, it ordains that no text-book of physiology that does not devote a certain proportion of its contents to this subject shall be used in the schools.

Dr. Meehan, while he admits the admirable motives of the promoters of this bill, points out that the legislation on the subject now in force is ample for the purpose, and states his conviction that such legislation is very generally lived up to throughout the State. "Such being the case," he asks, "why seek to add to an already good and all-sufficient law the ridiculously absurd provisions that young children, unable to read, shall be taught the subject of physiology orally, and that when they are able to read they shall receive four lessons a week for at least ten weeks of each year? The idea of teaching a strictly high-school branch to small, primary-grade children unable to read, and to an extent whereby the time given to it exceeds the amount of time allotted to this subject by our best medical schools! Is not such a proposition absurd on the face of it?" Dr. Meehan certainly takes a rational view of the matter, and it is to be hoped that such an injurious piece of legislation will never be carried into effect.

MINOR PARAGRAPHS.

A JOURNAL OF SOCIAL MEDICINE.

We have received the first number of the *Zeitschrift für sociale Medicin*, edited by Sanitary Counsellor A. Oldendorff, of Berlin, and published in Leipsic. It is devoted to the interests of physicians as a class, as distinguished from the science they have to study and the art they have to practise. The first number contains an article on Physician and Patient, by Dr. König, of Göttingen; one entitled Why should the Physician's Calling be Styled a Profession? by Dr. Oscar Schwartz, of Cologne; one on The Status of the Physician in the United States, by Dr. George H. Rohé, of Baltimore (translated from the English by Dr. Placzek, of Berlin); and one on The Development of Municipal Homes for Convalescents in Berlin, by Dr. Marggraff, of that city. In addition, there are literary notes, abstracts, letters, items, etc. Among other things of interest, we find the new fee-bill laid down for the physicians of Germany by His Excellency Dr. Bosse, Kultusminister. The new journal makes an excellent appearance and it covers a field to which, so far as we know, no other publication is especially devoted.

A BIT OF ANCIENT MEDICINE.

In an interesting pamphlet on *Diabetes Mellitus*, Dr. Kállay, of Karlsbad, alludes to the teachings of Susruta, the Indian, two thousand years before the Christian era. It seems that the progress made in medicine since that time has not very materially advanced our conception of the nature of diabetes. Susruta connected the symptoms with the essential malady, which he imputed to the kidneys, and he knew the grave prognosis attaching to the disease. If we have transferred the pathology from the kidneys to the nervous system, have we made any other substantial advance beyond what was known to this old Indian?

THE AMERICAN SURGICAL ASSOCIATION.

Several of the national special societies are holding their meetings at about this time, and it is to be hoped that the habit of holding them in early autumn is definitively broken up. The American Surgical Association is to meet in New York next week, and we are confident that the surgeons of New York will look well to the entertainment of their visiting brethren, as well as to their edification by means of clinics and the like. The programme of the meeting is given below.

THE ILLUSTRIOUS BOERHAAVE.

This is the title of an address delivered some months ago by Dr. William T. Lusk, of New York, before the graduating class of the Medical Department of Yale University. It appears in print in the May number of the *Popular Science Monthly*. It is well to keep the old masters in mind, and it is gratifying that a non-medical journal should now and then present medical matters to its readers. Dr. Lusk's address is full of interest, and may be read profitably by all classes of readers.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 21, 1895:

DISEASES.	Week ending May 14.		Week ending May 21.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	2	1	10	2
Scarlet fever	77	17	77	7
Cerebro-spinal meningitis	2	1	1	1
Measles	256	19	251	21
Diphtheria	220	40	250	33
Small-pox	0	0	0	0
Tuberculosis	85	96	118	122

The American Surgical Association.—The annual meeting will be held at the New York Academy of Medicine on May 28th, 29th, and 30th, under the presidency of Dr. Frederic S. Dennis, of New York. The programme includes the following papers: The President's Address, by Dr. Frederic S. Dennis; A Discussion on the Operation for the Radical Cure of Hernia, by Dr. William T. Bull, of New York, Dr. Charles McBurney, of New York, Dr. Henry H. Mudd, of St. Louis, Dr.

John E. Owens, of Chicago, and Dr. John H. Packard, of Philadelphia; The Results of the Treatment of Hypertrophy of the Prostate Gland by Castration, by Dr. J. William White, of Philadelphia (to be discussed by Dr. L. S. Pilcher, of Brooklyn, Dr. Roswell Park, of Buffalo, and Dr. William S. Halsted, of Baltimore); The Operative Treatment of Cancer in Various Localities, by Dr. F. H. Gerrish, of Portland, Me. (The Female Genital Organs, including the Uterus and the Vulva, by Dr. John Homans, of Boston; The Lips, the Tongue, the Floor of the Mouth, and the Pharynx, by Dr. P. S. Connor, of Cincinnati; The Breast, by Dr. J. S. Wight, of Brooklyn; The Male Genitals, by Dr. Hunter McGuire, of Richmond, Va.; The Rectum, by Dr. Arpad G. Gerster); Circumstances under which Chloroform is Preferable to Ether as an Anæsthetic, by Dr. G. W. Gay, of Boston; The Influence of Ether upon the Kidneys, by Dr. Robert F. Weir, of New York (to be discussed by Dr. T. F. Prewitt, of St. Louis, Dr. H. R. Wharton, of Philadelphia, Dr. J. D. Rushmore, of Brooklyn, Dr. Robert Abbe, of New York, and Dr. F. E. Lange, of New York); A Discussion on the Restoration of Joint Function after Fracture, by Dr. W. H. Carmalt, of New Haven, Dr. L. A. Sayre, of New York, Dr. N. P. Dandridge, of Cincinnati, Dr. J. B. Roberts, of Philadelphia, Dr. E. H. Bradford, of Boston, and Dr. John Ashhurst, Jr., of Philadelphia; The Bacteriological Aspects of Pus and of Suppuration, by Dr. Roswell Park, of Buffalo (to be discussed by Dr. W. S. Halsted, of Baltimore, Dr. L. M. Tiffany, of Baltimore, and Dr. John Parmenter, of Buffalo); Gunshot Wounds of the Heart, by Dr. Claudius H. Mastin, of Mobile; Injuries to the Pneumogastric and Phrenic Nerves, by Dr. Roswell Park, of Buffalo; Dislocation of the Ulnar Nerve at the Elbow, by Dr. H. W. Wharton, of Philadelphia; Ligation of the Innominate Artery, with the Report of a Case, by Dr. H. L. Burrell, of Boston; Immediate Suture of the Gall Ducts and the Gall Bladder after Extraction of Stones, with Cases, by Dr. J. W. Elliot, of Boston; A Case of Cholecystotomy, by Dr. S. H. Weeks, of Portland, Me.; Personal Experience with Mad Dogs, by Dr. Basil Norris; Hernia of the Bladder as met with during Operations for Inguinal and Crural Hernia, by Dr. Christian Fenger, of Chicago; The Radical Cure of Hernia by a New Procedure, by Dr. John H. Packard, of Philadelphia; Ligation of the Spermatic Cord in the Treatment of Hypertrophy of the Prostate, by Dr. J. Ewing Mears, of Philadelphia; Congenital Œsophageal Pouch; Excision; Immediate Suture of the Œsophagus; Recovery, by Dr. S. J. Mixter, of Boston. Clinics will be held at Bellevue Hospital, by Dr. Dennis and the visiting staff; at the Presbyterian Hospital, by Dr. McCosh, Dr. Bridden, Dr. Pilcher, and Dr. Wight; at the New York Hospital, by Dr. Weir, Dr. Bull, Dr. Hartley, Dr. Murray, Dr. Gerster, and Dr. Abbe; at the Roosevelt Hospital, by Dr. McBurney, Dr. Lange, Dr. Fowler, and Dr. Rushmore.

Members of the medical profession are cordially invited to attend the meetings of the association, except when it is in executive session.

The American Gynæcological Society.—Among the social accessories of the meeting to be held in Baltimore next week are a dinner to be given on Tuesday by the Gynæcological and Obstetrical Society of Baltimore and luncheons to be given on Tuesday and Wednesday by the Baltimore members of the American Gynæcological Society.

The Craig Colony for Epileptics has had the sum of one hundred and twenty-five thousand dollars appropriated for its use during the coming year. Governor Morton has appointed the new board of managers, twelve in number. Four members of the old board, including Dr. Peterson, Dr. Jones, Mr. Cuddebock, and Mrs. Wadsworth, are reappointed. Work at the colony will be begun at once for the reception of patients next fall.

The Richmond, Va., Academy of Medicine and Surgery.—At the next meeting, on Tuesday evening, May 28th, Dr. E. C. Levy is to open a discussion on the Treatment of Diphtheria, including Practical Experience with Antitoxine.

St. Joseph's Hospital for Consumptives.—An invited company is to meet Archbishop Corrigan at the hospital, at East One-hundred-and-forty-third Street and Brook Avenue, this (Saturday) afternoon.

The Hospital Graduates' Club held its annual dinner at the Hotel Hungaria on Thursday evening, the 23d inst.

The German Poliklinik held an anniversary celebration at the Liederkranz building on Wednesday evening, the 22d inst.

Change of Address.—Dr. Nathan S. Roberts, to No. 879 Lexington Avenue.

The Death of Dr. Harlan P. Allen, of Columbus, O., we have already recorded as having occurred in New York on May 2d. Dr. Allen was born and educated near Springfield, Mass. He was a student of the late Dr. Thomas A. McBride, of New York, was graduated at the College of Physicians and Surgeons in 1879, and was afterward an interne at Charity Hospital. He was married in 1882 to Miss Harriet C. Carroll, of Rhinebeck, at which place the interment took place. The Columbus Academy of Medicine has adopted resolutions concerning his death which we publish elsewhere.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending May 18, 1895:*

Young, L. L., Assistant Surgeon. Ordered to examination for promotion.

Olcott, F. W., Passed Assistant Surgeon. Detached from the Constellation and ordered to the Enterprise.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending May 15, 1895:*

Wheeler, W. A., Surgeon. Detailed as chairman of board for physical examination of applicants for appointment in Revenue Cutter Service. May 13, 1895.

White, J. H., Passed Assistant Surgeon. Detailed as recorder of board for physical examination of applicants for appointment in Revenue Cutter Service. May 13, 1895.

Carrington, P. M., Passed Assistant Surgeon. Granted leave of absence for fourteen days. May 4, 1895.

Cobb, J. O., Passed Assistant Surgeon. Granted leave of absence for fourteen days. May 1, 1895.

Society Meetings for the Coming Week:

Monday, *May 27th:* Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

Tuesday, *May 28th:* American Gynæcological Society (first day—Baltimore); Association of American Physicians (first day—Washington); American Surgical Association (first day—New York); New York State Medical Association, Fifth District Branch (annual—Brooklyn), New York Dermatological Society; Richmond, Va., Academy of Medicine and Surgery; Buffalo Obstetrical Society.

Wednesday, *May 29th:* American Surgical Association (second day); American Gynæcological Society (second day); Association of American Physicians (second day); Auburn,

N. Y., City Medical Association; Medical Societies of the Counties of Monroe (annual—Rochester) and Tompkins (annual), N. Y.; Berkshire, Mass., District Medical Society (Pittsfield).

Thursday, *May 30th:* American Surgical Association (third day); American Gynæcological Society (third day); Association of American Physicians (third day).

Saturday, *June 1st:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society, New York (private); Miller's River, Mass., Medical Society.

Births, Marriages, and Deaths.

Died.

Gadberry.—In Yazoo City, Miss., on Sunday, May 12th, Dr. W. Y. Gadberry, aged about seventy years.

Henry.—In New York, on Sunday, May 19th, Dr. Morris H. Henry, aged sixty years.

Hesse.—In Brooklyn, on Sunday, May 19th, Dr. Henry J. Hesse, aged forty-two years.

Joyce.—In New Orleans, on Sunday, May 12th, Dr. P. A. Joyce, aged thirty-four years.

Maxson.—In Pasadena, Cal., on Friday, May 17th, Dr. O. T. Maxson, of Evanston, Ill., aged seventy-two years.

Perkins.—In Salem, Mass., on Saturday, May 18th, Dr. George A. Perkins, aged eighty-one years.

Thompson.—In Chicago, on Tuesday, May 21st, Dr. Mary Harris Thompson, aged sixty-six years.

Traver.—In Troy, N. Y., on Friday, May 17th, Dr. Richard D. Traver.

Obituaries.

MORRIS H. HENRY, M. D., LL. D.

Dr. Henry, whose death took place last Sunday as the result of a chronic illness, was a notable person in the New York profession. His dignity of bearing and the fervor with which he was accustomed to deliver his sentiments in medical meetings will long be remembered, as well as the skill with which, for the few years of its existence, he conducted the *American Journal of Syphilography and Dermatology*. Those who really knew him well were aware that, in addition to dignity and gracefulness, he was possessed of an exceedingly kind heart.

Proceedings of Societies.

THE NEW YORK NEUROLOGICAL SOCIETY.

Meeting of May 7, 1895.

Dr. C. A. Herter in the Chair.

Uniocular Blindness.—Dr. J. Arthur Booth presented a case of blindness of one eye without any discoverable lesion in the eye. The special point to which he directed attention was as to whether after a functional blindness had lasted for a year or two the morbid condition might not persist, finally causing congestion and inflammation. The patient, a girl, fourteen years of age, had been perfectly well up to about a year before, at which time she had fallen on the ice and struck her head. Two months after this she had begun to have headache, chiefly frontal. On May 5th she had come to the Manhattan Eye and Ear Hospital because of dimness of vision. Examination had revealed almost total loss of vision in the right eye, without any change in the vessels or disc. While in the hospital she had had two hystero-epileptoid attacks. Strychnine had been given freely, but without benefit. Vision in the left eye was $\frac{15}{200}$, but could be brought up to $\frac{20}{20}$ by glasses. The field was much contracted in all directions. In a moderate light both pupils were dilated, the right being a little the larger. There was a marked loss of sensation in the right cornea, but no anæsthesia of the face, body, or extremities. Colors were readily recognized with the left eye. The knee-jerks were equal, but somewhat exaggerated. The treatment by means of drugs had failed, as had also hypnotism. Various tests had been made to detect any deception on the part of the patient, but the results had been negative.

An Unusual Case of Lead-poisoning.—Dr. William M. Leszynsky presented a man whom he had first seen about ten days before. He had experienced difficulty in making the diagnosis at first, on account of the obscurity of the ætiology. The man stated that at the onset, sixteen days before, he had had fever, vomiting, and malaise, but there had been no chill and no bladder or rectal symptoms. He complained of general weakness in the lower extremities. About the same time he first noticed an aching pain in the right shoulder, and two days later the index and the medius dropped, and the pain disappeared. A few days after this the weakness had increased, and when he was first seen by the speaker there was wrist-drop. The left arm and hand were also becoming weak, but there was no pain. Both extremities had felt numb. There was no history of exposure to cold. For five or six years he had been drinking five pints or more of beer daily. Examination showed muscular weakness—paresis of the deltoid, the upper portion of the trapezius, and the biceps group—and the extensors were paralyzed, as was also the extensor minimi digiti. There was also extreme tenderness along the course of the nerve trunks, as well as some tenderness of the muscles themselves. With such a history one would suspect lead-poisoning, and there was a slight line upon the gums suspiciously like a lead line, but the man was a cooper by occupation, and at first no history could be obtained of his having come in contact with lead. A provisional diagnosis had been made of alcoholic multiple neuritis beginning in the upper extremities. The urine was then examined, and traces of lead were found in it. There was no albumin or sugar. Inquiry then elicited the fact that he had had occasion to close barrels containing a preparation of white lead. Electrical examination showed absolute loss of faradaic irritability in the musculo-spiral on the right side and in the extensors, and diminished faradaic excitability in the other muscles that were paretic. Both knee-jerks were active. Ophthalmoscopic examination was negative. This patient had also had tachycardia, the pulse having been about 120 and weak.

Dr. M. Allen Starr said he had recently seen a man who had been in the habit of drinking a large quantity of water from the faucet every morning. It was believed that the water, having remained in the pipe all night, had become impregnated with lead, and that this had given rise to the lead-poisoning. The speaker said he had only seen one case of lead-poisoning in which all the extremities had been affected nearly equally, and where there had been intense pain along the nerve trunks and muscles. This patient, a painter, had been in the hospital for fourteen months, and all this time had had the typical blue line on his gums.

The Chairman agreed in the diagnosis of lead paralysis in the case reported by Dr. Leszynsky, notwithstanding the unusual tenderness of the nerve trunks and muscles, but he was inclined to think that the fact of the man having been a steady drinker might have had something to do with precipitating these symptoms. Alcoholism certainly precipitated attacks of lead-poisoning. During the past winter he had seen a large number of cases of severe alcoholic neuritis, and had been impressed with the fact that in a certain proportion of these the first symptoms had been pain in the joints and in the muscles about the shoulder.

An Intracranial Gumma.—Dr. C. E. Nammack presented a woman, twenty-four years of age, whom he had first seen two weeks before. For the preceding five months she had had constant headache, with vertigo and vomiting in the early morning. This had been followed by gradual loss of power in the right hand. Two months ago she had found that she was unable to close the left eye. There had been no injury or emotional shock, and there was no history of alcoholism or of venereal disease of any kind. She answered questions slowly, and it was difficult to keep her attention concentrated on any one subject. There was optic neuritis on each side, with beginning choked disc in the left eye. R. V. was $\frac{20}{20}$, and L. V. $\frac{20}{70}$, not improved by glasses. The tongue was furred on the left side only, and taste was diminished on this side. The diagnosis was that of an intracranial gumma situated in the lower part of the pons on the left side. For the past two weeks she had received inunctions of blue ointment and sixty grains of iodide of potassium three times a day, and already the improvement was remarkable.

Dr. B. Sachs said that it was well to be cautious about making a diagnosis of gumma in a case of this sort solely on the strength of the improvement observed from such treatment. For example, he had seen a man of forty-five years who had had a hemiplegic attack some years before and in whom the administration of a large quantity of iodide of potassium had caused the entire disappearance of all the symptoms for several months. Subsequently this man had had a fatal apoplectic seizure, and the post-mortem had shown a very large glioma. In connection with every neoplasm there was a large amount of exudation, and absorption of this fluid might be responsible for the improvement following the treatment.

Dr. Starr said that, if he remembered correctly, Dr. Nammack had himself recently reported a similar case to the society. Within ten days he had seen a boy of sixteen suffering from all the symptoms of well-marked tumor of the cerebellum. When this boy was eight years of age, he had suddenly been seized with symptoms of tumor of the cerebellum, and had been treated for such a tumor by Dr. Seguin. Within two months after the beginning of the antisyphilitic treatment the symptoms had entirely subsided, and the boy had been apparently perfectly well up to six weeks ago, when the eye symptoms had returned. Examination had shown the typical choked disc. Although this boy had not had syphilis, and the family history was exceptionally clear on this point, yet antisyphilitic treatment had caused the disappearance of the symptoms of tumor.

Dr. J. F. Terriberry remarked that one could get no idea of the degree of choked disc from the impairment of vision.

Report of a Case of Lead Paralysis, with Special Reference to Cytological Changes in the Nervous System and the Distribution of the Lead.—The Chairman read a paper with this title. The patient was a man, twenty-six years of age, poorly nourished and undersized, who had been admitted into the City Hospital on November 23, 1894, and had died on December 12th. His family history was negative. He had used alcohol moderately, but had never had syphilis. He had been a painter for a number of years. In February, 1894, he had been treated in the same hospital for very severe lead colic associated with double wrist-drop. With the exception of the latter, the symptoms had entirely disappeared during his stay in the hospital, and he had returned to his work. Shortly before his last admission he had begun to have attacks of nausea and abdominal cramps. On admission, he complained of weakness in his arms and legs. Examination showed slight œdema of the lower extremities; the apex beat was diffused and rather weak; the arteries were distinctly atheromatous; the pulse was 80, weak but regular; there was a well-marked blue line on the upper and lower gums; there was well-developed wrist-drop; and there was complete loss of power in the extensors of the wrist on each side, with but little power in the flexors. In the biceps of either side the power was unimpaired. There was atrophy of all the muscles below the elbow, and especially of the interossei. There was no triceps jerk. In the lower extremities there were slight drop-foot and moderate contracture of the calf muscles. The loss of power was rather more marked on the right side. The thigh muscles reacted fairly well to faradaism. The knee-jerks were feeble on both sides. No ophthalmoscopic examination was made, but the acuity of central vision was distinctly reduced. The patient was kept in bed and received, by mistake, ten grains, instead of five grains, of iodide of potassium, three times a day. Two days afterward the daily quantity of urine was 1,600 c. c.; it was acid, had a specific gravity of 1·016, and contained half a gramme of albumin to the litre. On December 6th there were 870 c. c. of urine excreted, and it contained half a gramme of albumin to the litre; urea, 14·36 grammes; uric acid, 0·17 gramme; phosphoric acid, 0·80 gramme; sodium chloride, 1·7 gramme; preformed sulphates, 4·56 grammes; and combined sulphates, 0·20 gramme. The absolutely low amount of urea and relatively and absolutely low amount of uric acid were striking features. On December 7th the patient began to be drowsy during the day, and three days later he was in a muttering delirium, and the pupils were contracted and reacted but little to light. On the 10th, the pupils were of the size of pin-points, the respiration was stertorous, the eyeballs were prominent, the pulse was feeble, and the surface of the body was cold and clammy. Death occurred on December 12th. On the last day 410 c. c. of urine were drawn by catheter. It had a specific gravity of 1·015, and contained albumin and a considerable number of granular and epithelial casts. The ratio of uric acid and urea was 82·7; the chlorides were low, and the sulphate ratio was again exceedingly low. Blood drawn two days before death showed the percentage of urea to be 0·76, which was two to three times the normal amount. At no time had there been convulsive movements.

Dr. Ira Van Gieson described the results of the post-mortem examination. He said that attention had been paid chiefly to the cytology of the ganglion cells—in other words, to the science of these cells. It was only by such investigations that we could fully understand the changes underlying a great many nervous disorders, and particularly the toxæmias, and affections due to over-fatigue of the ganglion cells. By reference to a chart, he showed how complex was the structure of these ganglion cells, as determined by modern methods of research. Lead-poisoning, he said, should be one of the most brilliant fields for this new line of observation, as the process was so slow. At the autopsy, in the case under consideration, several erosions had been found in the brain. The vessels at the base were normal, as were also the cranial nerves. The viscera, with the exception of the kidneys, were practically normal. The surface of the kidneys was rough and granular, the cortex was very thin, and the topography of the tubules was lost. The submaxillary glands, the thyreoid, and the suprarenal capsules showed no significant changes. Dr. Herter had found the epithelium of the secreting tubes in a state of marked granular degeneration, the cells of Henle's loops degenerated and containing hyaline casts, and the cells of the collecting tubes degenerated and proliferated and their lumen filled with degenerated cells and hyaline material. About half the glomeruli were in advanced fatty atrophy; in the remaining glomeruli the capsule was thickened, the capillaries were compressed, and the cells of the tufts were moderately increased. The tufts filled up the capsules.

The peripheral nerves had been hardened in osmic acid and examined, with the following result: In the ulnar, about one fibre in every ten was moderately degenerated; in the external peroneal, about one fourth of the fibres were collapsed and degenerated; in the sciatic of the middle of the thigh about one degenerated fibre was found in every ten; in the left external cutaneous there was partial degeneration of one fibre in ten, with more complete degeneration in three fibres in ten; in the right radial at the wrist one fibre in twenty was degenerated; in the left plantar, one in twelve.

Portions of both enlargements of the spinal cord had been hardened in various ways and examined in detail. By applying aniline dyes, fully one third of the ganglion cells showed a form of degeneration which changed the internal composition of the cell, although not its shape. Comparatively few of the cells were completely destroyed. The changes observed were not apparent if the specimens had been hardened in Müller's fluid and stained with carmin. In the specimens examined the chromophilous granules had been broken up and disseminated throughout the ganglion cells. Such changes, he felt, could be considered as entirely independent of the changes observed in connection with rest and fatigue. Some of the cells showed beginning vacuolation, and others an accumulation of pigment. It was now known that the quantity of pigment indicated the age of the cell. Where the degenerative process had gone still further, the cells had been nearly destroyed. These cells had been found equally distributed in the cervical and lumbar enlargements. Fully a third of the ganglion cells showed the mild changes first described as occurring in them.

In the sympathetic system no such changes had been as yet detected. The cerebellum in this case had been found absolutely normal. The motor zones had been particularly examined in the hand region, but, as little work had been done on the normal ganglion cells here, no positive deductions could be made. It was to be remembered that in cases of toxæmia there was often a rise of temperature shortly before death, and this might produce some of the changes observed in the nervous system.

The Chairman, continuing, said that the various organs, or portions of them, had been oxidized as thoroughly as possible, and the lead separated from this material on platinum plates. From these plates it had been dissolved with nitric acid, and ultimately converted into a lead chromate, and weighed as such. The spleen contained 0·004 per cent. of lead; the kidney, 0·0004 per cent.; the liver, 0·0021 per cent.; the brain, 0·001 per cent.; and the spinal cord, 0·0021 per cent. The lymph nodes of the mesentery gave no lead reaction. The soleus muscles contained 0·0081 per cent.; the lungs, 0·001 per cent.; the heart, a trace; and the blood, contrary to the experience of other writers, 0·0002 per cent. of lead. The brain, spinal cord, and liver contained small amounts of copper also.

The speaker said that the case was of interest on account of the loss of power in the upper and lower extremities and the long time the patient had been exposed to the influence of lead without exhibiting symptoms of lead-poisoning, and also because of the cerebral symptoms shortly before death. The great preponderance of the lesions in the spinal cord over those of the peripheral nerves was, perhaps, the most striking feature of the post-mortem findings. It was to these spinal lesions that the atrophic paralyses must be referred. The changes in the lumbar enlargement were rather more marked than those in the cervical enlargement.

Were the cerebral symptoms to be considered as due to the direct action of the lead on the brain? Three points should here be considered, viz.: 1. The motor areas showed no distinct change in structure. 2. The motor areas contained a small amount of lead. 3. The fact that there were only slight changes in the cortex, which did not exclude the possibility that the cerebral symptoms were due to lead. Two cases had been reported going to show that the cerebral symptoms might be present, even without there being any lead in the brain. A number of facts gave support to the theory that these cerebral symptoms were uræmic in character. The kidneys in the case reported must have been taxed to their full functional capacity for a considerable time before death. The post-mortem findings indicated that an acute diffuse nephritis had been engrafted on a chronic nephritis. The clinical record of the condition of the urine would also seem to support this view, for just before death the elimination of urea had been defective. It might be assumed, therefore, that the retained urea and various leucomaines had been concerned in a large degree in the production of the cerebral symptoms observed shortly before death.

The evidence strongly suggested that the chronic diffuse nephritis in this case was the result of the lead-poisoning. Many observations had certainly shown that this might be a cause of the small, contracted kidney. In this case there was nothing to indicate that there was any true gouty element present. The acute nephritis had possibly been induced by the irritation of the kidneys resulting from the administration of the large doses of iodide of potassium. The spinal cord contained nearly three times as much lead as the brain. There was no significance to be attached to the small quantities of copper found in the brain.

Dr. L. Stieglitz said that some years before he had made some extensive experiments with lead on the lower animals. He had noted the vacuolation of the ganglion cells in those animals in which the paralysis had been most marked. Erb, in his paper on lead-poisoning, had maintained that the anatomical changes in the peripheral nerves did not settle the pathology of lead-poisoning—indeed, he went so far as to say that in lead-poisoning there was first of all a functional lesion of the ganglion cells. By "functional" he meant changes so minute as not to be detected by the technique of that time.

The determination of the percentage of lead in the different organs was a very coarse method, and one should be cautious about deductions founded on such determinations. He believed the pathology of lead-poisoning could only be decided when we had found a micro-chemical test for lead, for we could then demonstrate the presence of lead in the degenerated ganglionic cells. He had devoted considerable time to observations on the kidneys of animals, and had found both chronic and acute nephritis. Half the animals he had experimented on had died of cerebral hæmorrhage. The probability that the condition of the kidney was responsible for the cerebral symptoms observed in lead-poisoning had already been urged in a paper by Westphal. It was well known that in acute poliomyelitis of children a certain part of the paralysis was entirely recovered from, and there was no reason to doubt that in these cases the ganglionic cells of the anterior horn were affected, probably by lesions similar in character to those just described by Dr. Van Gieson.

Dr. Mary Putnam Jacobi thought that the facts brought out had shown that the lead acted, not after being deposited in an organ, but during its circulation through the organ. The nutrition of the ganglionic cells might thus be seriously interfered with, and yet only a small quantity of lead remain in those parts. The frequent association of gout with lead-poisoning was another indication that the lead acted by disturbing the metabolism of the tissues. It was probably in this way that the nephritis was induced, rather than by direct action of the lead on the kidneys. This view would seem to be more in consonance with our knowledge of the comparatively indifferent nature of lead.

The Chairman agreed with Dr. Jacobi that the small, granular kidney was produced in cases of lead-poisoning by an indirect influence on the metabolism of the body, resulting in an increased amount of work being thrown on the kidney. He had not been aware that Westphal had stated his belief that lead encephalopathy was due to the condition of the kidneys, although he knew that Oliver had accepted this view for a certain small number of cases. He did not think, however, that any one previously had demonstrated that the blood in these cases did actually contain a certain amount of urea and allied substances.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of April 3, 1895.

The President, Dr. Charles Clifford Barrows, in the Chair.

Goitre treated by Injection.—Dr. William N. Hubbard exhibited a patient in whom he had treated a goître by injection. Nellie S., fifteen years of age, was anæmic, but well nourished. The thyreoid gland had begun to enlarge about two years before she had come to him for treatment, and had increased in size very slowly. In November, 1893, the circumference of the neck had been sixteen inches and a half. Fifteen drops of a solution containing equal parts of tincture of iodine, carbolic acid, glycerin, and water had then been injected into the tumor, and this treatment had been continued two or three times a week until the 1st of the following May. The circumference of the neck at that time had been fifteen inches and a quarter, and the tumor, instead of being rather soft and almost cystic to the touch, had become hard and dense, so that it had been difficult to insert the needle of the hypodermic syringe. Treatment had been discontinued during the summer, and in October, 1894, the circumference of the neck had measured fourteen inches and three quarters, a decrease of half an inch after the treatment had been discontinued. Since then trial had been made of electrolysis. Finding it impossible to properly insert the insulated, sharp-pointed needle ordinarily used for such work on account of the density of the gland, which had seemed as resistant as hard rubber, he had had made, after a model designed by Dr. Walter F. Chappell, a screw-pointed needle. By the use of cocaine this could be partially introduced without pain, but before the insulated portion of the needle could be imbedded beneath the skin the point would lose its hold, on account of the friability of the gland. Owing to the insulation necessary to protect the skin, the needles used for electrolysis were too large to be easily introduced into a hard, tough thyreoid gland. A trial had then been made of desiccated sheep's thyreoids, and for several weeks six grains, representing an entire average gland, had been administered three times a day. The results, however, had been entirely negative. At the present time the circumference of the neck was fourteen inches and three quarters, and the improvement had been due to the injections.

Dr. Robert T. Morris said he had recently treated a case of goître by Poncet's method, which consisted in making an incision over the enlarged gland and fastening the skin about its margins without incising the capsule. It had been alleged that, while granulation was going on, absorption of the goître would take place. He had been rather skeptical about this, but had tried it on one thyreoid enlargement nearly as large as the two fists. The thyreoid enlargement in this instance had entirely disappeared after the treatment. This was the only case in which he had tried the method. He had expected that there would be a rather broad, dark scar, but the scar had contracted so much as not to be very disfiguring. In the case presented by Dr. Hubbard he suspected that there had been a deep cyst, or else great enlargement of the blood-vessels. It seemed to him that the philosophy of Poncet's method of treatment was that absorption resulted from hyperleucocytosis.

Cases of Diphtheria treated with Antitoxine.—The President said he had successfully treated three cases of diphtheria with the antitoxine. On March 22d, at 5 p. m., he had seen a lady of eighteen years, who up to that time had been in good health, except for a sore throat for a few days previously. Her temperature had been 103° and pulse 110, and examination had shown that both the tonsils and the pharyngeal wall were covered with membrane, and the membrane had extended up into the posterior nares. A bacteriological examination had confirmed the diagnosis of true diphtheria. She had been put upon the usual treatment, but had continued to grow worse. On March 25th, the third day after seeing her, her condition had been extremely grave, the membrane having involved the whole pharynx, nasopharynx, and nasal cavities; a foul, acrid discharge had come from the nose; the voice had been reduced to a whisper, and the breathing had been difficult. There had also been some evidence at that time of involvement of the larynx, and the urine had contained a small quantity of albumin. The temperature had been 104°, the pulse 120, and the respirations 30. On March 25th, at 8 a. m., or on the fifth day of the disease, five cubic centimetres of Aronson's antitoxine, imported by Schering, had been injected by means of a bulb syringe. All other treatment had been then discontinued, except irrigation of the nose with hot boric-acid solution, and the administration of two ounces of brandy in the twenty-four hours, along with food. About twelve hours after the injection the temperature had been 102°, the respirations 30, and the pulse 110. About five cubic centimetres more of the antitoxine had been given. On March 26th, twenty-four hours after the first injection, the breathing had been easier; the temperature had been 100°, the pulse 120, and the respirations 26, and there had seemed to be a slight change in the appearance of the membrane, as if it were about to loosen. At 9 p. m., an eruption like urticaria had appeared over the elbows, hips, knees, and ankles, and this had been accompanied by a good deal of itching and swelling. On the morning of the 27th the pulse had been 100, the temperature 98·6°, the respirations 24, and there had been considerable loose membrane in the throat. The respirations had become easier and the cough less, and it had been possible to inject some fluid through the nose. On the 28th the temperature had been 99°, the pulse 100, and the respirations 24, and scarcely any membrane had been found in the throat. She had continued to improve, and about March 31st the membrane had entirely disappeared, and the urine had been free from albumin.

The other children of the family had been sent out of town. On March 26th, one of these, a girl of ten years, had been sent back to the city with both tonsils, the pharyngeal wall, and the nasal cavities covered with membrane, and with a temperature of 101°, a pulse of 120, and respirations 24. At 11 A. M., chloroform had been given, and ten cubic centimetres of Behring's antitoxine injected. The child had slept until about 7.30 P. M., when she had awakened with a violent delirium, the temperature being 104°, the pulse, 120 and the respirations 30. This had lasted until about 2 A. M., after which she had rested well. At 9 A. M. the temperature had been normal, the pulse 92, and the respirations 20, and the membrane was apparently separating. At 8 A. M. of the 29th, the second day after the injection, the temperature had been normal and the pulse 80, and the throat almost entirely free from membrane. On March 30th the throat had been entirely clear. There had been no albumin in the urine, and no constitutional symptoms except the rise of temperature and the attack of delirium after the injection of the antitoxine.

On March 27th, another sister in the family, nine years of age, had been brought to the city in much the same condition as the last. Ten cubic centimetres of Behring's antitoxine had been injected. At 4 P. M. she had also become delirious, with a temperature of 104° and a pulse of 120. About midnight she had fallen asleep and had rested until morning, when the temperature had been 98° and the pulse 96, with the throat in about the same condition. On March 31st the throat had begun to clear off and the membrane had rapidly disappeared, so that on April 2d she had appeared to be entirely well. There had been no unfavorable symptoms except with the first patient, who still had some slight paralysis of the pharyngeal muscles.

Dr. H. S. Houghton presented two charts illustrating his first experience with antitoxine. The children were six and eight years of age respectively. The first child had been taken sick on January 7th with symptoms which had not been at first positively diagnostic of diphtheria. On the third or fourth day of the disease he had been forced to the diagnosis of diphtheria, and late at night, with a large aspirating syringe, he had administered the first dose of antitoxine, injecting it into the anterior surface of the thigh. At this time the child had shown great depression from the disease. He had watched the pulse closely for two hours after the injection, but had observed no untoward effect from the treatment. It was on account of the injection having been given so late, he thought, that on the 11th the symptoms had all returned, the temperature rising to 103°, and the membrane spreading more rapidly than at first. A second injection had been followed by the same result as at first, and the child had made a good recovery.

On January 21st a second child had been attacked with the disease, and this time the diagnosis had been clear from the beginning. There had been a good deal of acrid discharge from the nose, and a temperature of 103·8°, but without much membrane. The antitoxine had been administered at nine o'clock in the evening; and the next morning, although the membrane had been abundant, there had been no constitutional symptoms, and the child had recovered rapidly. On the fourteenth day, in each case, there had been a general erythema, with itching, and in the second case, simultaneous with the eruption, there had been albuminuria. This child had also had some paralysis.

Dr. J. S. Waterman said that he had had two cases in which he had used antitoxine. His first case, that of a young man of twenty-eight years, had been seen in last December. The membrane had entirely covered the upper air-passages, except the larynx. No antitoxine could be procured until about the fifth day of the disease; then fifteen cubic centimetres of the Gibier antitoxine had been injected. On the second day after this a slight urticaria had appeared on the arm, and on the sixth day a very extensive urticaria had appeared over the whole surface of the body and had lasted about twenty-four hours. Dr. Bensel had told him that, in his experience, every case in which the Gibier antitoxine had been used had shown this urticaria. He had not noticed in this case any unfavorable influence from the antitoxine.

The next case had been that of a nurse. Ten cubic centimetres of Behring's antitoxine No. 2 had been injected forty-eight hours after the commencement of the attack. The membrane had covered both tonsils and the pillars of the fauces, and there had been considerable constitutional disturbance, with much œdema of the fauces. Within ten hours the œdema had almost entirely subsided, and in forty-eight hours she had appeared to be perfectly well. On the third day after the injection there had been a slight urticaria on the arm. The later development of urticaria seemed to be less common.

The President said that his first case had been as severe an example of diphtheria as he had ever seen, and everything about it had appeared to indicate a fatal termination. There had been a great deal of both local and general infection. The patient had been desperately ill at the time the first injection had been given. The action of the kidneys had been carefully watched, because the French journals had stated that patients treated by the antitoxine had exhibited nephritis much more frequently, and that when it had appeared it had been of a very virulent type. Nothing of the kind had been observed in the cases he had reported. He had used the No. 2 Behring antitoxine—that with the white label.

Dr. R. J. Carlisle asked whether if, in the first case reported by Dr. Houghton, in which the symptoms had returned, the local treatment had been continued.

Dr. Houghton replied that the usual treatment had been adopted from the very beginning, and he had depended very largely on calomel fumigation and spraying the throat with three-per-cent. pyrozone. There had been no internal treatment.

Dr. L. W. Hubbard suggested that the administration of chloroform in the cases reported by the president might explain the development of the delirium.

The President said that this was, of course, a possible explanation, but the delirium had not appeared for several hours after the patients had completely recovered from the chloroform.

Dr. Hubbard referred to a family in which diphtheria had developed last December. The first child he had been called to see had apparently been suffering from ordinary catarrhal croup, and this had yielded to the steam and other simple remedies. Two days afterward, the baby had been attacked with a membranous sore throat, and a bacteriological diagnosis of diphtheria had been made. Half a bottle of the weaker solution of Behring's antitoxine had been injected at the suggestion of Dr. W. H. Park. At this time there had been stertorous respiration. Five hours later the breathing had been nearly natural, and in twenty-four hours the membrane had nearly disappeared from the throat. Four days afterward, the cook in this family had developed a mild tonsillar diphtheria. She had been given two injections of the first serum made by the Board of Health. The membrane had entirely disappeared in twenty-four hours, and in forty-eight hours she had been going about her work. In neither case had there been any urticaria or any unfavorable symptom.

The President suggested that as the antitoxine solution seemed to contain a certain percentage of tricresol, it was possible that in some instances this might prove toxic to the patient, and so account for the occasional unpleasant results that had been reported.

The Diagnosis of Chronic Joint Disease.—Dr. W. R. Townsend read a paper with this title. (See page 644.)

Dr. Hubbard said that the author of the paper had insisted upon the importance of early diagnosis of chronic joint disease, and that most mistakes in diagnosis were made, not through ignorance, but lack of attention on the part of general practitioners. He would like to again emphasize the statement made in the paper that force was not necessary, but would defeat the purpose of the examination, as it would obscure the reflex muscular spasm. The existence of this spasm could easily be ascertained by careful manipulation after gaining the confidence of the patient.

Psoas contraction on one or both sides seemed to the speaker to be an extremely important early symptom of Pott's disease of the lumbar spine. This could often be detected when there was no distinct impairment of the flexibility of the spine. A limp in a child was always an important symptom, and one which should be considered as invariably of sufficient significance to demand a careful examination. This was especially true if the limp was more marked in the morning than later in the day. In knee disease it should be remembered that there might be two forms of disease—chronic synovitis, a disease beginning in the synovial membrane, and disease beginning in one or both of the adjacent bones. If the disease began in the synovial membrane, there would be a rounded, thickened condition of the membrane, with pretty free motion of the joint, and no spasm, except, perhaps, after fatigue. The same remarks applied to disease of the ankle. If the disease began in the synovial membrane, it was not advisable to limit the motion of the joint to the same extent as where the bone was involved; hence, from a therapeutic standpoint, it was a matter of some importance to make the distinctions mentioned.

Dr. Carlisle asked if, in making the diagnosis of early joint disease, atrophy was to be considered, for he could not understand how atrophy could exist except as a result of a neuritis.

Dr. Irving S. Haynes said that it was a fact that there were many joints in which the examiner was in doubt as to the existence of a joint affection until atrophy was detected. If atrophy existed, it should be considered a strong point in favor of the existence of joint disease. Whether the atrophy was due to nerve irritation or to disuse of the joint was a difficult question to decide, but, as it frequently occurred quite early in the disease, it seemed to him that it was probably of nervous origin.

Dr. Hubbard did not think it was due to a neuritis, because the atrophy had existed in cases in which there was no pain, and it might exist before there was any pain in the joint. Neither did he think it came from disuse, because it might appear in children before they had walked about. It seemed to him that by reflex action in the joint a disturbance in nutrition resulted, and, consequently, atrophy. Of course, the atrophy might not be over a quarter or half an inch until the disease had become quite marked. Quite recently he had seen a case of well-marked atrophy due to a fall on the sciatic nerve. It was impossible to make a diagnosis of chronic joint disease from any one symptom; there must be a group of symptoms all pointing in the same direction.

Dr. Townsend said that years ago Brown-Séquard had proved that nerve irritation alone was capable of causing early and rapid atrophy of the muscles; hence it was to be supposed that the first atrophy was due to trophic changes, and not necessarily to a neuritis. In patients who had shown symptoms of the disease for only a few days or weeks, it had not been uncommon to find atrophy on the affected side. If a limb was put in plaster of Paris and immobilized at the joint above, the atrophy would not be anything like that observed in joint disease; hence the atrophy here could not be due simply to disuse.

In reply to a question from Dr. Carlisle as to whether the atrophy was in the spastic muscles, the speaker said that the atrophy was usually to be found in these muscles.

Fracture of the Femur from Muscular Action.—Dr. Irving S. Haynes reported the case of J. W., an athlete, thirty-six years of age, who, while bowling, had attempted to throw a heavy ball, in doing so had lost his equilibrium, and, in endeavoring to regain it, had brought such a strain upon the left femur as to fracture it in the middle. The line of the fracture had extended slightly obliquely from above and inward, downward, and outward. He had been in unusually robust health, and had been free from any specific disease; hence the manner in which the fracture had been produced was of unusual interest.

Dr. J. W. S. Gouley recalled the case of a healthy young man, under thirty years of age, who, while endeavoring to hurl a ten-pound dumb-bell to a considerable distance, had thrown back his right arm so far that it was beyond the control of certain muscles, with the result that the humerus had snapped just below the deltoid insertion. Of course, in this case the weight of the dumb-bell had been a decided factor in addition to the muscular action. The fracture had united satisfactorily. No disease of the bone had been found, although the speaker said that when fracture occurred in this way he was usually suspicious of the existence of malignant disease of the bone. It was not uncommon for fractures of bone to occur from very slight causes, such as movements in bed, where there was malignant disease of the bone.

Miscellany.

The Treatment of Secondary Hæmorrhage from the Arteries of the Upper Extremity.—The May number of the *Medical Chronicle* contains an article on this subject by John E. Platt, F. R. C. S., of London, in which the author relates the histories of four cases in which he has been called upon to treat secondary hæmorrhage from the arteries of the upper extremity. Three of the cases were examples of secondary hæmorrhage from wounds dividing the radial and ulnar arteries and the superficial palmar arch respectively, and the fourth was a case of hæmorrhage from ulceration into the brachial artery. The first case was that of a man with a wound of the wrist dividing the ulnar artery. Secondary hæmorrhage had occurred on two occasions. No suppuration had taken place, and the ends of the vessel were readily found and ligated. The second was that of a man with a wound of the superficial palmar arch from which there had twice been secondary hæmorrhage. The wound was aseptic and the author found a small puncture in the superficial palmar arch. He applied a ligature on each sides of the puncture, and also ligated one of the digital branches which arose close to it. There was no further hæmorrhage in either case, and the wounds healed without suppuration.

The other cases were examples of hæmorrhage from arteries in sloughy wounds, and the treatment adopted by Mr. Platt was a modification of that usually employed. The first case was that of a young woman who had sustained a wound of the thumb which had been followed by enlargement and suppuration of one of the lymphatic glands lying near the termination of the brachial artery. The abscess was opened and four days later hæmorrhage occurred from the cavity. It was not very profuse, but, as it recurred on the following day, the author decided to place the patient under an anæsthetic and explore the cavity. He found that the bleeding came from a small branch of the brachial artery, which had been opened by ulceration close to the main trunk. It was not possible to ligate the branch, and two silk ligatures were therefore placed on the main trunk, one on each side of the bleeding point. The wound was washed out with an antiseptic lotion and a drainage-tube inserted. The author thinks that he made a mistake in using silk ligatures; the wound being septic, the ligatures would also become septic, he says, and would therefore have to cut through the vessel and come away before the wound could heal, during which process there would be considerable danger of recurrence of the hæmorrhage. This, says Mr. Platt, was exactly what happened. For thirteen days after the operation all apparently progressed well, but after that period the hæmorrhage returned, and it was necessary to adopt further measures. Plugging the wound would have been useless, for the collateral circulation, if free enough to prevent gangrene of the limb, would have caused a return of the hæmorrhage. It was, moreover, impossible to ligate the bleeding point again, for the walls of the vessel were too soft to hold a ligature. After careful consideration the author decided to open up the wound, to trace the artery upward and downward until perfectly healthy parts were reached, to remove the suppurating portion of the vessel, and, in order to prevent any further trouble from ligatures, to twist the divided ends. The wound was consequently enlarged and the artery exposed. It was in a sloughy condition, especially in the neighborhood of the distal ligature; this was freed and the whole of the diseased vessel removed. This, says Mr. Platt, was a greater undertaking than he had expected, for he found it necessary to take away four inches of the vessel. The divided ends of the main trunk were twisted, as were also a few small branches which arose from it. From this time the patient made an uninterrupted recovery, the circulation in the distal part of the limb returned almost immediately, and the wound healed completely in about three weeks. The patient at the present time, says Mr. Platt, is perfectly well; the cicatrix is sound, and there is no interference with the usefulness of the limb. Two enlarged collateral vessels can be felt pulsating near the elbow, one near the external and the other near the internal condyle, but only a very faint pulse is perceptible in the radial artery.

The fourth case was that of a man who had cut his wrist with a piece of glass; the radial artery was punctured, but not completely divided. The bleeding was said to have lasted for five hours, although pressure was applied. The hæmorrhage returned on the three following days and he was very anæmic; moreover, owing to the great amount of local pressure which had been applied, there was a large sloughy wound just above the wrist. It was impossible, says Mr. Platt, to secure the vessel satisfactorily in the midst of this slough, and he therefore adopted the procedure which had been employed in the preceding case. The vessel was cut down upon just above the wound and divided, and the upper end twisted. Following the vessel downward, a healthy portion was reached in the space between the extensor primi internodii and the extensor secundi internodii pollicis, in which situation it was divided and the lower end twisted. From this time, says the author, the man had no further trouble, although the healing of the wound took several weeks. The length of the vessel was two inches and three quarters, and its walls were in a sloughy condition.

Mr. Platt thinks that this method of treatment is one which may be adopted with advantage in dealing with certain cases of hæmorrhage from sloughy arteries, especially in the upper extremity. In such cases, he says, it is useless to temporize; the bleeding is almost certain to recur, and the longer we wait the more extensively will the artery be diseased. Ligation of the main trunk higher up the limb is almost sure to fail, for if the collateral circulation is free enough to prevent gangrene, it will, in all probability, be free enough to cause recurrence of the hæmorrhage. Ligation of the softened vessel is difficult and unreliable. The best treatment, says the author, appears to be by ligation or torsion of a healthy portion of the vessel on each side of the bleeding point, and of the two, he gives preference to torsion, as it leaves no foreign body in the wound. The objection to this method, that it opens up the planes of cellular tissue further, is, the author thinks, far outweighed by the advantages. As the wound is freely opened up, the greater part of the sloughy tissue can be removed, proper drainage can be provided, and suitable agents can be applied to excite healthy action. With regard to the case of the brachial artery, Mr. Platt expresses the opinion that if prompt measures had not been taken in dealing with the suppurating vessel, the case would have ended in amputation.

Inhibitory Procedures in the Treatment of Hiccough.—In the *Journal des praticiens* for April 20th M. Pauzat relates the following case: The patient, a young girl, had a good constitution and a nervous temperament. There was no positive family history. At the age of thirteen she had been attacked with nervous symptoms which manifested themselves under the form of more or less convulsive attacks. She showed peculiar characteristics, and was very excitable. The author thought that if he could have made an examination marks of a distinctly hysterical nature would have been found. In February, 1892, the patient took a very hot foot-bath during menstruation, which was immediately arrested, and the patient's general health was very much affected. It produced an almost complete anorexia, which persisted until the 12th of March, when the patient was suddenly taken with an attack of hiccough which was remarkable for its intensity. It occurred from thirty to thirty-five times a minute, and was accompanied by a noise resembling barking. It continued night and day for three days, in spite of the employment of certain procedures commonly used. During the twenty-four hours, however, there were short intervals of rest.

The author was called at once to the patient, and he immediately practised compression of the two phrenic nerves, according to M Leloir's teaching—that is, above the clavicle, between the insertions of the two sterno-cleido-mastoids. The hiccough rapidly became less, and at the end of three minutes it was arrested, only to return, however, after an interval of fifteen minutes. During the two following days revulsives were employed and large doses of chloral and of syrup of ether were taken. The hiccough was then stopped for about twelve hours, when it again made its appearance and persisted with the same violence. The author then decided to resort to nervous compression as follows: 1. Compression of the two phrenic nerves at the neck for ten minutes. The hiccough stopped, but returned in two minutes after suspension of the compression. 2. Compression of the right cubital nerve in the retro-epitrochlear groove for ten minutes. The moderating effect of this procedure was evident, for the frequency and intensity of the hiccough were very sensibly diminished, although it was not completely stopped. 3. Compression of the two phrenic nerves was again employed for ten minutes; the intervals between the attacks became longer, and not more than two or three hiccoughs occurred in a minute. Compression was then suspended, but was replaced afterward by another method, the application of which lasted half an hour. At the end of this time the attack was arrested for about two hours, but returned again at night, when the patient, who was very religious, made a long and fervent prayer asking relief from a condition which rendered her unable to perform her work. Very shortly afterward the hiccough stopped. During the four months that followed this crisis the author saw the patient, and found that menstruation had become re-established, and that the hiccough had not returned.

In view of all the conditions of this case, says M. Pauzat, the hiccough seemed to be of an hysterical nature, and it may be that its arrest was due to self-suggestion resulting from the prayer; but it is not his desire to call attention to this case, except from the point of view of the effects produced by the compression of certain nerves. Compression of the phrenic nerves arrested the hiccough, but only temporarily, and compression of the right cubital was even less efficacious, although it evidently produced a moderating effect. The new method referred to consists in pressing the soft part of the thumb against that of the little finger. By this means the author has always been able to arrest the hiccough when it is taken in the beginning, and he has recommended the employment of this method to others who have used it with good results. The inhibitory effect is, without doubt, he says, due to compression of the numerous nervous branches in the soft part of the fingers. Pressure of the soft part of the thumb against that of the little finger of the same hand gives rise, in the majority of persons, to a marked tension of the articulations of the first metacarpal with the trapezium and the first phalanx of the thumb. It seems that this tension is not unconnected with the results obtained, and it may thus be understood how pressure of the thumb against the index finger, the middle finger, or the ring finger is less efficacious. In the application of this procedure the following conditions must be scrupulously and carefully carried out: 1. Pressure of the soft part of the thumb against that of the little finger should be energetic, and made simultaneously with both hands. 2. The pressure should be made as soon as the hiccough begins; once it is established, the procedure may moderate or even arrest it, but it then takes longer to obtain good results.

The Late Dr. Bernard E. Vaughan.—At a stated meeting of the Hospital Graduates' Club held April 23, 1895, the following resolution was adopted:

The Hospital Graduates' Club desires to place upon its records its deep sense of the loss it has sustained in the death of its late member, Dr. Bernard E. Vaughan. From the date of his admission to the club to that of his decease, it had no warmer friend or more loyal supporter than he. He was faithful in his attendance, cordial in his social relations, and able in his scientific work. By his death, the members of the club feel that they have lost a valued friend and the medical profession of the city one of the most promising of the younger men in its ranks. Be it therefore

Resolved, That the sincere sympathy of the club be tendered to his bereaved family, and that this action be entered upon the club records and published in the professional journals of the city.

[*Signed.*] James E. Newcomb, M.D.,
Thomas S. Southworth, M.D., } *Committee.*

The Late Dr. Harlan P. Allen.—The following preamble and resolutions have been passed by the Columbus Academy of Medicine:

Whereas, Our former president and associate, Dr. Harlan P. Allen, while in the zenith of his usefulness, has been removed by death; therefore be it

Resolved, That this academy has sustained an irreparable loss in the death of Dr. Allen, who was one of its ablest and most energetic members, whose work as executive, in the preparation of papers, as well as in debate, was distinguished by clearness, good judgment, and advanced thought.

Resolved, That the profession of medicine has lost one of its most scholarly and worthy representatives, who did much to preserve its fair name and advance its interests.

Resolved, That the community has lost a citizen who in his professional and social relations was guided by a character of high standard, and whose pure, dignified, and unostentatious life won for him the respect and confidence of all with whom he came in contact.

Resolved, That these resolutions be made a part of the records of the academy, and published in the *New York Medical Journal* and in the *Columbus Medical Journal*, and that a copy be transmitted to Mrs. Allen, with the profound sympathy of the members of the academy.

E. J. Wilson, M.D.,
[*Signed.*] N. R. Coleman, M.D., } *Committee.*
W. K. Rogers, M.D.,

The Association of American Physicians will hold its tenth annual meeting in Washington, D. C., on May 30th and 31st, and June 1st, under the presidency of Dr. William Osler, of Baltimore. The programme includes the following papers: The President's Address, by Dr. William Osler, of Baltimore; Leucomaine Poisoning, by Dr. B. K. Rachford, of Cincinnati; Some Toxicogenic Germs found in Poisonous Foods, by Dr. V. C. Vaughan and Dr. George D. Perkins, of Ann Arbor; The Effects of the Gaseous Products of Decomposition upon the Health of Animals that are Compelled to Respire them, by Dr. A. C. Abbott, of Philadelphia; Renal Affections following Influenza, by Dr. G. Baumgarten, of St. Louis; A Contribution to the Study of Thoracic Tumors, by Dr. William Pepper and Dr. Alfred Stengel, of Philadelphia; The Ætiology of Idiopathic Hypertrophy of the Heart, by Dr. James T. Whitaker, of Cincinnati; The Transmission of Mitral Diastolic Murmurs, by Dr. J. P. C. Griffith, of Philadelphia; The Use of the Differential Stethoscope in the Study of Cardiac Murmurs, by Dr. A. H. Smith, of New York; The Cause of the Exaggeration of Sounds over the Right Upper Chest, both in Health and Disease, by Dr. Charles Cary, of Buffalo; The Preparation of Antitoxine, by Dr. H. C. Ernst, of Jamaica Plain, Mass.; A Case of Madura Foot (Mycetoma Pedis), by Dr. J. G. Adami, of Montreal; Gonorrhœal Arthritis—Clinical Observations, by Dr. W. P. Northrup, of New York; Hyperthermy up to 66·5° C. (148° F.), by Dr. A. Jacobi, of New York; A Comfortable Way of Using Cold in Fevers, by Dr. F. H. Williams, of Boston; Some Observations on the Spleen and Marrow in Leucæmia, by Dr. J. Guitéras, of Philadelphia; Goître in Michigan, by Dr. George Dock, of Ann Arbor; Displacements of the Liver, by Dr. J. E. Graham, of Toronto; Carcinoma of the Liver with Cirrhosis, by Dr. M. H. Fussell, of Philadelphia; Epidemics of Typhoid Fever, Scarlet Fever, and Diphtheria Due to Milk Infection, by Dr. S. C. Busey, of Washington; Forcible Artificial Respiration—the Fell-O'Dwyer Apparatus—Cases, by Dr. W. P. Northrup, of New York; Carosso's Treatment of Pulmonary Tuberculosis, by Dr. H. C. Ernst, of Jamaica Plain, Mass.; On the Direct Faradization of the Mucous Membranes of the Stomach and the Intestines of Animals (Dogs, Cats, and Rabbits), by Dr. S. J. Meltzer, of New York; Two Cases of Fat Necrosis, by Dr. C. G. Stockton, of Buffalo.

The New York State Medical Association.—The Fifth District Branch will hold its eleventh annual meeting in Brooklyn, on Tuesday, the 28th inst. The following papers will be read: The President's Address, by Dr. Austin Flint; Biographical Sketches of the late Dr. S. T. Hubbard (by Dr. S. S. Purple and Dr. John Shrady), the late Dr. H. Goldthwaite (by Dr. Charles Phelps), and the late Dr. M. T. Field (by Dr.

Stephen Smith); Living Bacteria in the Bladder, by Dr. X. T. Bates; A New Method of Operation for Marked Deflection of the Nasal Sæptum, by Dr. S. Oppenheimer; The Abuse of Medical Charities, by Dr. Frank Van Fleet; Ectopic Pregnancy, by Dr. Edwin Barnes; Overfeeding, by Dr. T. J. Barton; The Propriety of Administering Digestive Ferments, by Dr. H. A. Haubold; Chronic Catarrhal Laryngitis, with Special Reference to its Ætiology, by Dr. Dwight L. Hubbard; and A Few Clinical Notes on a Recent Series of Operations, by Dr. Thomas H. Manley.

The Massachusetts Medical Society will hold its one hundred and fourteenth anniversary meeting in Boston, on Tuesday and Wednesday, June 11th and 12th, under the presidency of Dr. Frank K. Paddock, of Pittsfield. The programme includes the following papers: The Shattuck Lecture—The New England Invalid, by Dr. Robert T. Edes, of Jamaica Plain; Modern Views of the Nature and Treatment of Exophthalmic Goître, by Dr. J. J. Putnam, of Boston; The Home Treatment of Phthisis, by Dr. V. Y. Bowditch, of Boston; The Diagnosis of Malaria by Means of Examination of the Blood and the Presence of Laveran's Bacillus, by Dr. Philip Kilroy, of Springfield; The Recent Progress in Genito-urinary Surgery—The Treatment of Enlarged Prostate, by Dr. A. T. Cabot and Dr. F. S. Watson, of Boston; The Ætiology of Diphtheria and the Use of Antitoxine, by Dr. H. C. Ernst, of Boston; The Pathology of Diphtheria, by Dr. W. T. Councilman, of Boston; The Prophylactic Use of Antitoxine, by Dr. F. G. Morrill, of Boston; The Preparation of Diphtheria Antitoxine, by Dr. J. L. Goodale, of Cambridge; and The Clinical Use of Antitoxine, by Dr. W. H. Park, of New York.

The Indian Territory Medical Association will hold its semi-annual meeting at South McAlester on June 4th and 5th, under the presidency of Dr. M. C. Marrs, of Claremore. The programme includes the following papers:

Pneumonia, by Dr. O. Bagby, of Vinita; Headaches, by Dr. R. I. Bond, of Harthorne; Pernicious Malarial Fever, by Dr. J. S. Fulton, of Atoka; Diarrhœa, by Dr. P. Donaho, of Afton; The Selection of Climate for Phthisis Pulmonalis, by Dr. B. Fortner, of Vinita; Meningitis, by Dr. E. N. Allen, of McAlester; Chorea, by Dr. J. D. Brazel, of Wagoner; Insanity, by Dr. J. T. Wilson, of Sherman, Texas; Traumatism of the Eye, by Dr. J. M. Ball, of St. Louis; Cataracts, by Dr. B. Tiffany, of Kansas City, Mo.; Puerperal Eclampsia, by Dr. W. C. Hall, of Coffeyville, Kansas; Uterine Reflexes, by Dr. G. W. West, of Eufaula; Metrorrhagia, by Dr. G. R. Rucker, of Eufaula; Phlegmasia Dolens, by Dr. G. A. McBride, of Fort Gibson; The Surgery of Mines and Railways as a Class, by Dr. H. B. Smith, of McAlester; Pott's Disease, by Dr. F. B. Fite, of Muskogee; Fractures, by Dr. W. B. Miller, of Tallihina; Erysipelas, by Dr. S. C. Tennent, of McAlester; The Surgery of the Gall Bladder, by Dr. J. C. Gunby, of Sherman, Texas; Tetanus, by Dr. B. Hackett, of Fort Smith, Ark.; Urethral Contractions with Prostatic Disturbance, by Dr. M. C. Marrs, of Claremore; and The Modern Surgery of the Bladder, by Dr. Emory Lamphear, of St. Louis.

The Connecticut Medical Society.—The one hundred and third annual meeting was held in Hartford on May 22d and 23d, under the presidency of Dr. Francis N. Braman. The programme included the following papers:

Typhoid Fever, by Dr. Irving W. Lyon, of Hartford; Perforation in Enteric Fever; its Surgical Treatment, by Dr. Frederick H. Wiggin, of Litchfield; Notes of an Epidemic of Typhoid Fever at South Glastonbury, by Dr. Charles G. Rankin; The Treatment of Typhoid Fever at the Hartford Hospital, by Dr. Joseph B. Hall, of Hartford; A Brief History of Serum Therapy, by Dr. Arthur J. Wolff, of Hartford; The Use of Diphtheria Antitoxine in Connecticut, by Dr. Irving W. Lyon, of Hartford; A Report on the Progress of Medicine, by Dr. Elbridge W. Pierce, of Meriden, and Dr. Everett J. McKnight, of Hartford; A Report on the Progress of Surgery, by Dr. Charles C. Godfrey, of Bridgeport, and Dr. L. W. Bacon, Jr., of New Haven; Senile Cataract: One Hundred Cases: Comment, by Dr. Frederick M. Wilson, of Bridgeport; the President's Address—Medical Sociology, by Dr. Francis N. Braman; Pneumonia and the Treatment of its First Stage by Stimulation, by Dr. William J. Tracey, of Norwalk; Tetanus, by Dr. Edwin B. Lyon, of New Britain; The Modern Management of Natural Labor, by Dr. Henry Fleischner and Dr. Benjamin A. Cheney, of New Haven; Endometritis; its Surgical Treatment, by Dr. Frederick Schavoir, of Stamford; The Eye and Diseases to which Eye Symptoms Point, by Dr. Arthur N. Alling, of New Haven; The Errors of Refraction found in Four Thousand Eyes, by Dr. Harry S. Miles, of Bridgeport; Cerebral Thrombosis, by Dr. Gustavus Eliot, of New Haven; The Morphine Habit, by Dr. John W. Wright, of Bridgeport; Simple Meningitis, by Dr. Max Mailhouse, of New Haven; Cerebro-spinal Meningitis, by Dr. N. Nickerson, of Meriden; Tubercular Meningitis, by Dr. Stephen J. Maher, of New Haven; A Case of Acute General Miliary Tuberculosis, of the so-called Typhoid Form—Autopsy, by Dr. James M. Keniston, of Middletown; Modern Improvements in the Treatment of Diseases of the Skin, by Dr. R. A. McDowell, of New Haven; The Localization of Intestinal Obstruction; Illustrated by Three Cases, by Dr. W. S. MacLaren, of Litchfield; Observations on Operations for the Radical Cure of Hernia, with Report of Cases, by Dr. George C. Jarvis, of Hartford; Observations on Appendicitis, with Report of Operations, by Dr. Charles E. Tafft, of Hartford; The Diagnosis and Non-operative Treatment of Appendicitis, by Dr. John F. Dowling, of Enfield; Fracture of the Kneepan, by Dr. James K. Mason, of Suffield; Public Hygiene, by Dr. Lucy C. Peckham, of New Haven; A Defense of Public Health Boards, by Dr. Frank W. Wright, of New Haven; The Therapeutic Value of Mountain Forests, by Dr. Charles D. Alton, of Hartford; The Inebriety of Insanity from a Medico-legal Point of View, by Dr. Thomas D. Crothers, of Hartford; A Case of Utero-vesico-vaginal Fistula, with Successful Operation, by Dr. George C. Jarvis, of Hartford.

The New Hampshire Medical Society will hold its one hundred and fourth anniversary meeting in Concord on June 3d and 4th, under the presidency of Dr. David P. Goodhue, of Springfield. The programme includes the following papers: The Germ considered as a Prime Factor in the Production and Treatment of Disease, by Dr. S. W. Roberts, of Wakefield; Congenital Imbecility, by Dr. Edward French, of Concord; The Physician as a Citizen, by Dr. S. N. Welch, of Sutton; A Report on Surgery, by Dr. J. Franklin Robinson, of Manchester; Electricity in the Hands of the General Practitioner, by Dr. G. H. Saltmarsh, of Lakeport; On Cancer, with Special Reference to Recent Studies as to its Cause and Treatment, by Dr. Gilman D. Frost, of Hanover; Diarrhœa, by Dr. Benjamin Cheever, of Portsmouth; Some of the Uses of Strophanthus, by Dr. W. K. Wadleigh, of Hopkinton; The Bacteriological Diagnosis of Diphtheria, by Dr. Herbert C. Emerson, of Concord; The Serum Treatment of Diphtheria, by Dr. C. P. Frost; The Modern Methods of Treating Diseases of the Nose and Throat, by Dr. O. B. Douglas, of New York; The Physical Basis of Crime, by Dr. John J. Berry, of Portsmouth; Conservatism in Medicine and Surgery, by Dr. Granville P. Conn, of Concord; The President's Address, by Dr. David P. Goodhue.

Original Communications.

SYMPTOMATOLOGY OF CEREBELLAR DISEASE;

CLINICAL ANALYSIS OF A HUNDRED CASES, WITH REPORT OF FOUR PERSONAL CASES.*

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The most important addition to our knowledge of cerebellar physiology in recent times is the able monograph of Luciani, published in Florence in 1890. Luciani was first attracted to this field in the summer of 1882, he having in that year completely extirpated the cerebellum of a dog and succeeded in keeping the animal alive.

The fact that this was a possibility, and considering the chaotic condition in which cerebellar physiology existed, induced him to make a minute study of the subject, casting aside all theories and hypotheses, and plunging into the very beginning of the work just as if cerebellar physiology had never been thought of.

After eight years of observation and study, he brought his labor to the light of day, and a comparison of his results with the results obtained by other experimenters, and a comparison of these with the symptoms of cerebellar disease, will be the purpose of this paper.

The pioneer of cerebellar physiology depends upon whether the compiler resides in England, Italy, or France. If in England, then Willis is considered the father; if in Italy, then Rolando; and if in France, then Flourens is considered the founder. Willis was undoubtedly the first to lend attention to the cerebellum, although his work was more anatomical than physiological or experimental. Rolando essayed the solution of cerebellar action and experimented upon animals, especially young pigeons, turtles, etc. His technique was faulty, and the animals experimented upon lived but a short time after the removal of the cerebellum. As a result of his experiments he found that slight injuries to, or partial destruction of, the cerebellum influences muscular movements, while complete destruction annihilates the nerve activity, the abolition of which occasions complete paralysis.

Supporting these deductions he cites the clinical cases of Bianchi, Larrey, and Bertini.

In Bianchi's case, abscess of the right lobe of the cerebellum produced paralysis of the right side of the body; in Larrey's case, injury to the right lobe was followed by right hemiplegia; and Bertini's diagnosis of cerebellar disease was based on the uncertain, irregular muscular movements of his patient, resembling the antics of a drunken man.

Although mistaken regarding the presence of paralysis, which is nothing more than a loss of sthenic tone, Rolando proved that the cerebellum exerted some influence over the correlation of muscular forces, and that an insult to one side of the cerebellum was manifested by some disorders on the corresponding side of the body.

Flourens, the brilliant young French experimenter, in 1822 addressed to the Royal Academy of Sciences a memoir on cerebellar physiology, which stands to day for all that is accurate and positive regarding cerebellar action from an experimental standpoint. Three of his experiments, which are quoted by all writers on this subject, may not be amiss in this paper:

"I extirpated the cerebellum of a pigeon by successive layers. During the removal of the first layers only slight feebleness and want of harmony in the movements were noticed.

"At the middle layers an almost universal agitation was manifested, but without convulsions; the pigeon executed sudden and disordered movements; hearing and vision remained intact. On the removal of the last layers the faculty of jumping, flying, walking, and maintaining the erect position was lost entirely. Placed on its back, it was not able to recover itself, and became vainly and continually agitated, but it never moved in a firm and definite manner."

The entire removal of the cerebellum, then, in a pigeon results in volition, sensation, and perception remaining intact. The possibility of making general movements persists, but the co ordination of the movements in regular and definite acts of locomotion is lost.

The second experiment relates to partial removal of the cerebellum in a young cock. The animal immediately lost all stability, all regularity in its movements, and its tottering and bizarre mode of progression reminded one entirely of the gait in alcoholic intoxication.

Four days after, the equilibrium was less disturbed, and the progression was more firm and assured.

Fifteen days after, the equilibrium was completely restored.

Partial destruction of the cerebellum, then, means a temporary loss of muscular co-ordination.

Flourens fell into an error regarding the influence of the cerebellum as crossed instead of direct, each hemisphere exerting its influence over the corresponding half of the body. With this exception, the experimental results of this astute observer remain unchallenged to this day, even though there may be difference of opinion as to his deductions regarding the functions of the cerebellum.

Magendie, another French physiologist, followed closely upon the work of Flourens, and repeated the almost forgotten experiments of Pourfour du Petits—that of cutting the cerebellar peduncles and observing the animal rotate on its longitudinal axis toward the right or left, according to the side on which the peduncle was cut. He also observed what Fodera von Palermo had previously noticed—that injuries to the cerebellum were accompanied by an uncontrollable inclination to lean or even fall backward.

Serres (1826), through faulty experimentation, taught that the action of the cerebellum was crossed; he also observed the tendency of animals to recoil, to incline the head backward, and was the first to call attention to the fact that the cerebellum exerts powerful influence over the extremities, more particularly the inferior or posterior. This is shown nicely in the experiments upon pigeons, where, after extirpation of the cerebellum, on being thrown into the air they are able to fly, but, on trying to rise from the ground, they are unable to use their feet, because, as Serres says, they are paralyzed.

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* Read before the Medical Society of the State of New York at its eighty-ninth annual meeting.

Gall, the father of phrenology, in the early part of the century taught that the cerebellum was the seat of the sexual desires. This doctrine was combated by Bouillaud (1827), who, studying many clinical cases, asserted that the cerebellum had no connection whatever with the sexual instincts. Bouillaud followed Flourens's experiments, and tried to prove that the cerebellum presided over acts of equilibrium, of station, and of progression.

Andral, in 1833, published the first series of cases of cerebellar disease, and was able to collect ninety-three cases, of which six were under his personal observation. Of these cases, only one, according to Andral, tended to confirm the opinion of physiologists that the cerebellum was the organ that regulated the co-ordination of muscular movements. Longet (1842), in his *Anatomy and Physiology of the Nervous System*, says, in view of Andral's results, we must be extremely reserved in calling the cerebellum the co-ordinator of voluntary muscular movements. Andral's analysis seems to have precipitated a merry war between the experimental school and the pathological school. The former, following Flourens and Bouillaud, regarded the cerebellum as the organ of co-ordination, while the latter lent it no such functions.

Flint, in his text-book on physiology, page 712, makes a scrutinizing analysis of Andral's cases, and comes to the following very sound conclusions:

"Of Andral's ninety-three cases, eighty-five may be thrown out altogether, leaving but eight; and of these eight cases, five are so imperfectly described and the disorganization of the cerebellum is so restricted that they may also be disregarded. The ninety-three cases are thus reduced to three. Of these three cases, in two it is uncertain whether or not there were deficiency of co-ordinating power, and in one the difficulty in equilibrium or co-ordination was distinctly noted." This criticism does not show that Andral's cases are opposed to the Flourens doctrine.

Following Andral's publication, there seems to have been a lull in the study of cerebellar physiology, for nothing important was published until the year 1860, when Brown-Séquard, in his lectures on the central nervous system, taught that the inco ordination was not due to the loss of function of the cerebellum, but that it was due to irritation of neighboring parts of the brain carried through the cerebellar peduncles.

Schiff studied carefully the effects of cutting the cerebellar peduncles and was the first to explain one of the elements of cerebellar ataxia—namely, that it was due to incomplete fixation of the vertebral column, the result of paralysis of the vertebral muscles.

Wagner, Dalton, Lusanna, and Renzi, in their experiments on pigeons and birds, added little that was not known of cerebellar physiology, their findings taking more the character of negative rather than positive phenomena.

Dalton, however, found that the greater the extirpation of the cerebellum the more pronounced would be the motor disturbances, and these would disappear, leaving nothing but a certain general muscular weakness. After the disappearance of the inco-ordination, the result of an irritative lesion, there remains the general muscular weakness, the result of the deficiency lesions.

The inco-ordination he believed to be due to the sudden injury to the cerebellum as a whole, rather than the simple loss of a part of its substance.

Renzi asserted that the cerebellum was the seat of memory, while Lusanna set up the hypothesis that the muscle sense resided in the cerebellum.

Other observers, especially Foville and Pinel-Grandchamp, thought that the cerebellum stood in close relation with the posterior white columns, and therefore presided over general sensation.

Leven and Ollivier (1862–'63) rejected the Flourens doctrine, but made the same error as Flourens in thinking the action of the cerebellum crossed instead of direct.

Luys (1864) undertook to resuscitate the Rolando doctrine, and regarded the muscle weakness following extirpation of the cerebellum not paralytic but asthenic.

Weir Mitchell came practically to the same results obtained by Dalton, Leven-Ollivier, and Luys, regarding the weakness following extirpation of the cerebellum, and considered it as one of the great centres of force development for voluntary and perhaps involuntary motion. Its loss leaves finally no functional defect save some incapacity for prolonged muscular activity.

Nothnagel in 1876 emitted the theory that to the middle lobe alone belonged the functions commonly ascribed to the cerebellum, and that on lesion of this lobe, directly or indirectly, the symptoms of cerebellar disease exclusively depend.

Ferrier, in his experiments on monkeys, found that when the cerebellum has been totally removed the animals exhibit the most tumultuous disorders of equilibrium, so that station and locomotion are for the time altogether impossible. Gradually these tumultuous disorders subside, so that the animal can sit up, but is so tottering that it falls over on the slightest disturbance or excitement. A persistent feature is the astasia or unsteadiness of the head, trunk, and limbs.

If only one of the lateral lobes is removed the sprawling, ungraduated action of the limbs and the astasia are confined to the same side as the lesion.

If the middle lobe is destroyed the symptoms are essentially of the same character as those which follow destruction of the whole organ, but they do not affect one side more than the other and are more pronounced in the head and trunk than in the limbs. These symptoms are less persistent, and in a few months almost entirely disappear. If one of the peduncles is cut the symptoms have the same character as those following destruction of the lateral lobe, and are confined to the limbs on the side of the lesion.

Ferrier concludes that the cerebellum is the organ presiding over the equilibrium of the body or the location of the body in space.

Stefani (1877) regarded the cerebellum as Ferrier the organ of maintaining the equilibrium; Bechterew is also of this opinion, but regards the olivary bodies, the semicircular canals, and the gray matter of the third ventricle as associated with the cerebellum in the performance of this function.

Bianchi succeeded in keeping alive for some time a dog which had the greater part of its cerebellum removed, which showed no sign of inco-ordination, but simply a loss of muscular power.

The results obtained by experimental physiologists previous to Luciani's publication may be summed up as follows:

First, as concerns the negative phenomena, all observers are practically agreed that the cerebellum plays no part whatever over the mind, instinct, intelligence, sensibility, or special senses; these functions belong to the cerebrum alone, and remain unaffected even in the most severe of cerebellar accidents.

That the sexual instinct resides in the cerebellum, as advocated by Gall, has found no supporter, and must be dismissed from further consideration.

The teaching of Rolando, Serres, and others, that paralysis follows cerebellar extirpation must likewise be modified so as to mean loss of tone or simply weakness, which may disappear or persist according to the extent of injury to the cerebellum.

The positive phenomena following complete or partial extirpation are more difficult to enunciate, and any attempt to make generalizations will be met by stern rebukes and demurrers. As Vulpian has aptly said, the problem of the functions of the cerebellum is still far from being definitely solved. However, this much we do know:

1. That lesions of one side of the cerebellum produce symptoms on the corresponding side of the body.

2. That after partial removal of the cerebellum muscular weakness follows, which disappears almost entirely after a lapse of a few months.

3. That after complete removal of the cerebellum in animals the movements of the lower or inferior extremities become tangled, and they refuse to obey the impulses which try to guide their action.

4. That the cerebellum has some function over the regulation of muscular movements, either co-ordinative or compensatory; the weight of opinion seems to favor the former.

5. That lesions of the middle lobe seem to affect both sides of the body, while lesions to the lateral lobes or peduncles affect the corresponding side of the body only.

To Summarize.—The cerebellum, as a centre, according to the majority of observers up to 1890, presides over the co-ordination of muscular movements, the effects of which would be to maintain the equilibrium of the body, the guidance of locomotion, and the maintenance of body station.

Luciani's labors in the field of cerebellar physiology deserve the highest encomiums, and his views merit most respectful consideration. It is gratifying to know that which the cerebellum does not do, even if we dispute the things that it does do. Luciani has virtually decided for all time that complete extinction of the cerebellum produces neither partial nor general paralysis of the mind, perception, volition, intuition, muscular movements, or the appetites. Removal of the cerebellum produces, first, irritative phenomena; secondly, ataxic phenomena. The irritative phenomena follow closely upon the destruction of the cerebellum, and are indicated by such symptoms as opisthotonus and pleurothotonus, rotation round the longitudinal axis, squinting, or deviation of the optic axis. The ataxic phenomenon or cerebellar ataxy is due to three principal conditions—asthenia, atonia, and astasia—due to the loss of a sthenic tone and static influence which the cerebellum normally exerts on the apparatus of movements, and which is the essence of its function. A trophic influence is also exerted by the cerebellum direct on the efferent tracts which spring from it, and indirect on the nutrition of the body.

According to Luciani the cerebellum is an end organ directly or indirectly related to certain peripherical sensory organs, and in direct efferent relationship with certain ganglia of the cerebro-spinal axis, and indirectly with the motor apparatus in general. It is functionally homogeneous, each part exercising the functions of the whole, but having special relations to the muscles on the corresponding side of the body.

Now turn from the physiologico-experimental to the clinico-pathological and see how the facts obtained from experiments upon animals harmonize with the symptoms of cerebellar disease.

From 1880 up to the present time, the era of greatest scientific progress that medicine has ever enjoyed, I have been able to collect ninety-seven cases* of cerebellar disease in which the diagnosis was verified by the necropsy.

This does not embrace cases of mental defect or aberration with such lesions as atrophy or absence of the cerebellum, but, with one or two exceptions, only those cases where a diagnosis was surmised *intra vitam.* To this number I can add three of my own which I will report later on in this paper. These cases have been studied with a view of establishing a syndrome of cerebellar disease based upon the labors of clinicians the world over.

Of these one hundred cases the pathological finding in the cerebellum is as follows: Sarcoma in twenty-two cases, tubercles in twenty-two, glioma in eighteen, abscess in ten, tumor (character not specified) in thirteen, cyst in seven, and one case each of softening, endothelioma, cyst and sarcoma, cancer, gumma, fibroma, and hæmorrhage. The procreative faculty of the cerebellum for neoplasms of various kinds is here well illustrated, being particularly partial toward tuberculosis and the sarcomata.

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* The cases reported by American observers in this list are those of Eskridge, *Journal of Nervous and Mental Disease*, 1885, No. 12; Wilkins, *Canada Medical and Surgical Journal*, 1886, No. 4; Seguin, *Journal of Nervous and Mental Disease*, 1887, No. 4; Preston, *Journal of Nervous and Mental Disease*, 1889, No. 4, and 1892, No. 4; Booth, *Journal of Nervous and Mental Disease*, 1889, No. 3, and 1890, No. 10; Knapp, *Journal of Nervous and Mental Disease*, 1892, No. 2; Knapp, *Intracranial Growths;* Dercum, *Transactions of the American Neurological Association*, 1893; Starr, *Brain Surgery;* Amidon and Weir, *Annals of Surgery*, 1887; Wyman, *Medical News*, 1890; Bullard, *Boston Medical and Surgical Journal*, 1890; Angell, *Buffalo Medical and Surgical Journal*, 1894, No. 9.

The left lobe of the cerebellum was found to be the seat of lesion thirty-two times, the right lobe thirty-two times, the middle lobe seventeen times, both right and left six times, right and middle lobes three times, left and middle lobes twice.

Turning to the clinical manifestations, we find that headache was present in eighty-three cases, absent entirely in six cases, and in twelve cases its presence or absence was not reported.

Vomiting occurred in sixty-nine cases, was absent in nine cases, and not reported in twenty-three cases.

Optic neuritis was found in sixty-six cases, was absent in twelve, and not reported in twenty-three.

Vertigo was present in forty-eight cases, absent in nine, not reported in forty-three.

These four symptoms are generally considered characteristic of intracranial growths, and their frequency in this series of cases shows that whether the tumor resides in the cerebrum or cerebellum the "big four" must ever be regarded as pathognomonic, especially when all of them or even three are present at the same time.

Of the symptoms which we are in the habit of designating distinctly cerebellar, we find that occipital pain and tenderness were present in forty-five cases, doubtful in thirty-nine, absent in eight, and not reported in eight.

Ataxia—and by this I mean the disturbances of motion, especially of the inferior extremities—was noted in fifty-eight cases, absent in nine, and not reported in thirty-two.

Asthenia, or the lack of sthenic tone in the muscles as evidenced by weakness, erroneously termed paralysis or paresis, was present in forty-eight cases, absent in fourteen, and not reported in thirty-eight. It would have been interesting to determine whether the muscular asthenia always occurred on the same side as the lesion, as was found in the experiments upon animals, but the clinical histories were very faulty in this particular, and hence no data could be obtained to form any conclusion, although it is generally admitted that such is the case. Convulsions, either partial or general, were present in thirty cases, absent in fourteen, and not reported in fifty six.

Inclination to go to one side or the other has sometimes served as an index for determining the lobe affected, the rule being that the patient walks toward the side bearing the lesion. Of thirty-five cases where inclination was reported the following results were obtained: Where the lesion was situated in the right lobe, six inclined to the right, two to the left, two backward, and one forward. Where the lesion was situated in the left lobe, four inclined to the left, one to the right, and three backward. Where the middle lobe was affected, four inclined to the left, two to the right, and one backward. In eight cases there was no inclination either to the right or left. These results seem to bear out the rule enunciated that the patient moves from the well to the diseased side.

The tendon reflexes were reported normal in ten cases, exaggerated in twelve, and diminished or absent in twelve cases.

Disturbances of the general sensibility were so rarely noted, and the reports so incomplete, that any careful consideration is out of the question.

The symptom astasia, so often quoted by Luciani, which is the counterpart of the tremors, oscillations, instability of the body in station and motion, has been partly considered under the head of inclination. The tremors which were so often noticed in animals, sometimes compared by writers to the intention tremor of multiple sclerosis, were recorded in only two or three of the one hundred cases collected.

Polyuria and glycosuria were likewise so infrequent, and the cause so hypothetical, that they may be dismissed from the list of primary cerebellar symptoms.

Another important group of symptoms arising chiefly from pressure of the tumor mass upon the floor of the fourth ventricle, producing paralysis of the fifth, sixth, seventh, eighth, ninth, and tenth pairs of cranial nerves, or the blocking up of the venæ Galeni and the consequent dilatation of the lateral and third ventricles, are only secondary, but concomitant with the primary symptoms help to localize more accurately the seat of the lesion in the cerebellum. The sudden death so often observed in cerebellar disease may be due to the effects of pressure upon the nucleus of the vagus nerves.

Marked changes in the sexual desire, the appetites, or the mental states were not discoverable.

To summarize, the symptoms of cerebellar disease arranged according to their frequency in this series of cases would be headache, vomiting, optic neuritis, vertigo, ataxia, asthenia, occipital pain and tenderness, inclination to turn toward the side of lesion, convulsions, and such secondary symptoms as nuclear paralyses, polyuria and glycosuria, tremors, and sudden death. The negative symptoms would comprise the disorders of the sexual desire, of the mind, of sensation, and the variability of the tendon reflexes.

The following cases* of cerebellar disease have come under my observation. Cases I and II having been previously published, Cases III and IV, seen by me during the past year, are reported here for the first time:

CASE I. *Clinical Diagnosis: Tuberculosis of the Cerebellum; Autopsy; Anatomical Diagnosis: Miliary Tuberculosis, with Implication of the Cerebellum.*—In January, 1888, Willy L., a child of two years, appeared for the first time in the polyclinic for nervous diseases of Professor Mendel and Professor Eulenburg (Berlin), where I had the opportunity of studying the case.

The child was emaciated, thin, pale, and showed, in general, a scrofulous disposition. The father had always been a healthy man. The mother, with the exception of being an alcoholic, had always enjoyed good health. The mother relates the following history:

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* Case I. *Tuberkel Knoten des Kleinhirns.* Inaugural Dissertation. William C. Krauss, M. D., University of Berlin, August 8, 1888. Case II. *Journal of the American Medical Association*, Chicago, November 30, 1893.

For some time past the child had been subject to attacks, regular in appearance, occurring every five minutes. During these attacks, which may be regarded as epileptoid, clonic contractions appear on the right side, particularly involving the right arm; the head is drawn backward and is rigid. During these paroxysms the patient is not in an unconscious condition, nevertheless the mental faculties are somewhat blunted. Movements of the orbits, general convulsion, tonic and clonic, and paresis of the sphincters are wanting. The mother reports that the child complains frequently of headaches, during the night is restless, and sleep is much disturbed. During the past week the child has become quiet and apathetic. The mother also relates that four children have died of similar attacks.

Status Præsens.—The child is in a state of apathy, paying no attention to surrounding objects; is indifferent during the examination. The head is easily moved; no rigidity at the back of the neck. The movements of the eyeballs are normal; the pupils react readily, and show no difference in their size. An examination of the fundus of the eye was not undertaken. The tongue is protruded easily, shows no deviation, shows no appearance of scars either recent or former. The face shows no dissimilarity of the two sides. An examination of the extremities reveals no paresis or paralysis. The general sensibility is not affected.

The child, in attempting to walk, shows a staggering gait, with a tendency to fall backward, so that it is impossible to make any progress without support. The reflexes are all normal.

An examination of the lungs shows consolidation in both upper lobes, with fine bronchial râles.

The heart sounds are distinct; no murmurs appreciable. The pulse is not retarded. The examination of the remaining organs gives a negative result.

The diagnosis is that of an affection of the brain—or the cerebellum—based upon the epileptoid convulsions, headaches, staggering gait, dizziness, nocturnal cries, and semi-comatose condition. With reference to the age, constitution, and condition of the lungs it is plausible to infer that the affection is of a tubercular nature.

Ten days later death occurred, and the report of the autopsy is as follows:

The body gracile, emaciated; shows a slight amount of rigor mortis. The cranium is easily removed; no adhesions of the dura. The dura presents nothing of interest. The pia is clear, easily removed; no adhesions to the cortex. Blood-vessels are not engorged.

In attempting to remove the brain from the cranium the left hemisphere of the cerebellum offers resistance, being firmly adherent to the dura. By using some force the adhesions are overcome, but there remains attached to the dura a round, somewhat regular mass of about the size of a hazelnut. The left hemisphere of the cerebellum shows a cavity with irregular walls, corresponding to the tumor attached to the dura.

The cerebrum presents a smooth surface, with no perceptible resistance. Cross sections reveal nothing abnormal. The surface of the cerebellum shows, with the exception of the cavity above referred to, nothing abnormal. A closer examination, however, reveals distinctly the presence of six round, hard tumors, the size varying from a bean to a hazelnut, and a number of smaller ones less distinct in the substance of the cerebellum. Cross sections show the tumors to be distributed in the superior and inferior vermiform processes and the inferior lobes of the right and left hemispheres.

A section of the tumors shows them to be grayish white, of a distinct concentric formation. The centre shows a soft, degenerated caseous mass. The surrounding tissues are œdematous.

The examination of the thoracic cavity reveals the pleura pulmonalis covered with numerous yellowish points of about the size of a pin's head. Sections through the lungs reveal in great number the same deposits. The mediastinal glands are swollen and present the same caseous consistence as the tumors in the cerebellum. The heart shows nothing abnormal.

By request of the parents, the examination was limited to the cranial and thoracic cavities.

Anatomical Diagnosis.—Miliary tuberculosis, especially characterized by the formation of tubercular deposits in the cerebellum.

The nodule to which I will pay special attention is a tumor having the size and form of a hazelnut, with a diameter of ten millimetres. It is situated in the inferior-posterior lobe of the right hemisphere, occupying the greater portion of this lobe. A longitudinal section through cerebellum and nodule shows it to extend upward into the region of the corpus dentatum. The grayish coloration of its external layers permits it to be easily separated from the surrounding tissue, while its centre presents two large, opaque caseous masses surrounded by an amorphous structure not possessing the caseous character of the former, being less opaque and of a greater consistence. The central masses are surrounded by a zone having a concentric laminated structure of a light-gray color. The transition into the normal tissues of the cerebellum is not a sharp one, the gray coloration of the external zone of the nodule gradually disappearing. During the section-cutting the nodule shows the following microscopic changes: Gradually diminishing in size, and in the centre several small, opaque, irregular masses appear. Laterally another group of small nodules appear, increasing in size gradually, conglomerating, forming a new nodule laterally and posterior to the one first described. The lobus inferior posterior of the right hemisphere, therefore, possesses two tumors of about equal size; the one situated mesad and anteriorly, the other laterally and posteriorly.

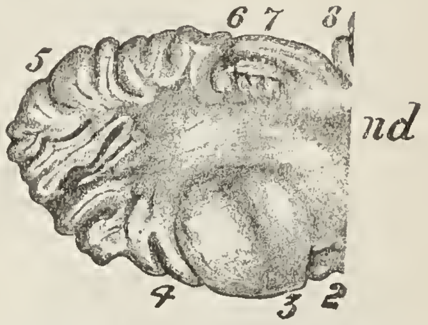

Fig. 1.—Case I (natural size).—*nd*, nucleus dentatus; 2, lobus cuneiformis; 3, 4, lobus posterior inferior, with nodule; 5, lobus posterior superior; 6, 7, 8, lobus lunatus posterior.

Case II. *Clinical Diagnosis: Neoplasm of the Right Lobe of Cerebellum; Autopsy; Anatomical Diagnosis: Cyst of Right Lobe of Cerebellum.*—For the history of this case and the pleasure of having made the observation I am indebted to my friend Dr. Linus T. McAdam, of Buffalo, N. Y.

Jacob M., aged thirty-six years; height, five feet seven inches; weight, a hundred and seventy pounds; complexion, fair; constitution, robust; well developed. Antecedents, nothing of particular note was elicited; family history good.

Early History.—The patient passed through infancy and adolescence without any serious illness; never contracted syphilis or gonorrhœa. Some years ago he suffered a slight attack of insolation from which, however, he seemed to have fully recovered.

Present Condition.—On October 23, 1892, the patient consulted Dr. McAdam for pain in the back of the head, dizziness, nausea, peculiar revolving sensations in his head, and on standing or while walking an inclination to be drawn backward. So strong were these last sensations that while the patient was in bed he would be compelled to turn on his right side, his head deep in the pillow, or while working in a stooped position he would suddenly fall backward, and on several occasions received quite severe knocks on his head. Along with these symptoms there coexisted a subnormal temperature, slow pulse, furred tongue, loss of appetite, sallow complexion, discoloration of the conjunctivæ, and constipation. The patient was given hepatic stimulants, but without obtaining any alleviation of the distressing symptoms. A few days after this first visit he again consulted his physician, and complained of great thirst and gave a history of polyuria. On examination, the urine was found to contain sugar in abundance, and on measuring the urine it was found that he passed sixty to seventy ounces daily. About this time (November 7, 1892) he experienced considerable difficulty in walking, and was obliged to discontinue all work and remain at home. With assistance he was still able to walk about the house, but his gait was unsteady, staggering, with a marked tendency to fall backward and to the right.

With the exception of the glycosuria and polyuria, which subsided under careful treatment, the remaining symptoms gradually became more and more severe, and a consultation was held. The disease was diagnosticated as of cranial origin, but no definite diagnosis was reached. All methods of treatment proving unavailing, and, Dr. McAdam being desirous of further counsel, the writer was called to see the case on January 17, 1893, with his family physician.

The patient was found lying upon a couch, complaining of intense occipital pains radiating toward the vertex. On sitting up he felt dizzy, nauseated, and as if his head were being pulled backward. On attempting to walk his gait was staggering, with a desire to fall to the right and backward, and on walking across the room with assistance he would continually veer to the right.

Psyche.—His mind seemed to be clear and unaffected; sleep, fair.

Motility.—The strength of the muscles of the extremities was diminished, but no more than the inactivity to which he was subjected would warrant; the muscles of the right side were, however, weaker than those of the left.

Tendon Reflexes.—The patellar tendon reflexes were slightly exaggerated. Other superficial and deep reflexes were normal.

Sensation.—There existed no disturbance of the sensory nerves; trophic and vaso-motor disturbances were likewise wanting.

Special Senses.—Unfortunately, the fundus of the eye was not examined, due perhaps to the fact that no ophthalmoscope was at hand. An ophthalmoscopic examination was, however, promised, but failed eventually to be performed. No abnormities whatever of the special senses were discernible; no loss of sexual power was admitted.

To me it seemed clear that we had to deal with some cerebellar neoplasm, but what its nature or origin I could not say. The characteristic symptoms of cranial tumor—such as intense cranial pain, obstinate vomiting, vertigo, coupled with symptoms which we are wont to denominate cerebellar, as staggering, ataxic gait, inclination to fall backward, occipital tenderness, etc.—warranted the diagnosis arrived at.

Not receiving the desired promise of speedy and certain recovery, the patient sought other advice, and the history of the course of the disease was unfortunately interrupted. On the evening of March 15, Dr. McAdam was hastily called, and arrived in time to see the fatal termination. Inquiry elicited the fact that for two or three weeks previous the patient had been attacked with a slight fever with occasional chills. No convulsions had been noticed at any time.

An autopsy was made on the following day by the writer, assisted by Dr. McAdam, with the following results: The calvarium was rather thick, dura somewhat adherent. The pia was clear; vessels not markedly injected; Pacchionian bodies small and sparse. The convexity of the brain appeared healthy, the convolutions were not flattened, and the fissures were of usual depth. The cerebrum was removed; beginning cephalad, the basilar structures were carefully severed, and, on cutting the right side of the tentorium cerebelli, a clear, amber-colored fluid flowed into the cerebral cavity. The cerebellum was carefully removed, and in the inferior-occipital fossæ was found about an ounce to an ounce and a half of amber-colored fluid. On closer examination the right lobe of the cerebellum was found to be flattened, boggy, and considerably smaller than the left lobe. This condition was quickly explained by the presence of a large cavity in the right lobe, the walls of which had collapsed, and the fluid had escaped during the removal of the cerebellum. The entire right lobe appeared to have been undermined, and virtually was nothing more than the walls of the cyst. During the dissection and examination of the cerebellum the undertaker thoughtfully and thoughtlessly sponged the cranial cavity, thus depriving us of any ot the cystic fluid for a more careful microscopic examination. It is therefore impossible to say just what the character of the cyst was: whether it was the result of hydatid disease, or of inflammatory or hæmorrhagic origin.

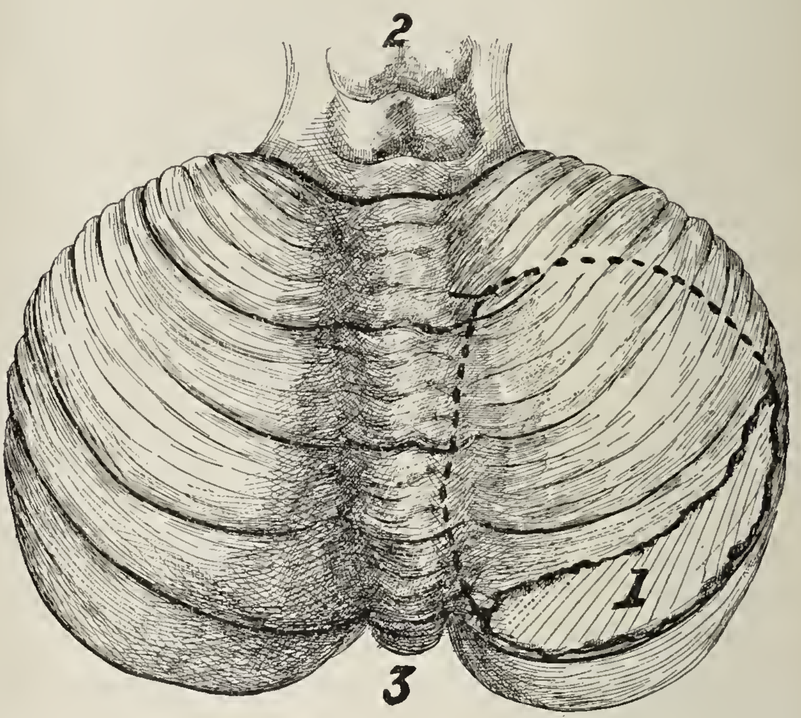

FIG. 2, Case II.—1, opening of cyst cavity (the dotted line shows the size of the cyst); 2, the corpora quadrigemina; 3, the vermis.

CASE III. *Clinical Diagnosis: Abscess of Left Lobe of Cerebellum; Autopsy; Anatomical Diagnosis: Abscess of Left Lobe of Cerebellum.*—S. S., aged forty-two years, kindly referred to me by Dr. C. W. Bourne, of Hamburg, N. Y.; height, five feet five inches; weight, two hundred and eleven pounds; constitution strong, healthy; complexion dark; married and father of children; occupation, salesman; family history shows no trace of any hereditary or constitutional disease.

Early History.—When four years old he had an attack of brain fever and was sick ten days; otherwise he has always been a healthy, robust man, of good habits, moderate in his appetites, ambitious, striving to attain success in everything he undertook.

During the latter part of November, 1893, he slipped on an icy sidewalk and struck on the back of his head. He complained of a numb feeling, but did not experience much pain. It only made his head "feel queer," as he stated, and in a few days he felt no further effects of the fall. The following week he was taken sick with the "*grippe*," according to his family physician. He complained of a general malaise, drowsiness, dizziness, pain in the ears, but no otorrhœa. He was not confined to his bed, but did not leave the house for two weeks. He returned to his work, but after a week's trial was compelled to abandon it because of the ear trouble, which caused him much pain and dizziness. He experienced a dull, heavy feeling just back of the ears—would tire easily.

About February 1, 1894, he again resumed his work, and soon thereafter had a second fall on an icy sidewalk, striking the back of his head with considerable force. He was stunned for a few moments and complained of much pain about the occiput. After treating the head with liniments and applications for a few days, he was once more able to go on the road. On March 17, 1894, he complained for the first time of a severe headache at the back of the head, and referred to it as "just as if something were trying to burst his head open." The pain was excruciating, its greatest intensity being over the left occipital region. Pressure upon the occiput alone would relieve it. About midnight of the same day he began to vomit, apparently on the least exertion, without any warning; no nausea, and the vomited material would be forced from his mouth (projectile vomiting). He was unable to retain anything on his stomach, expelling it immediately, and vomited much watery fluid. The least movement of his head or body would precipitate a spell of vomiting. He complained of much dizziness and vertigo. His gait was staggering, loggy, and he could not rise from the chair alone because of the dizziness and inclination to fall backward. His condition grew gradually worse, and in a few days he was unable to leave his bed. His head would be drawn down into the pillows, and he seemed to have lost the power over the movements of the head. I was summoned to see him in consultation with his family physician on March 29, 1894, and found the *status præsens* as follows:

A strong, well-nourished, heavily built man of about forty years of age, lying upon a bed with his head drawn backward, the posture of spinal meningitis. On hearing the history of vomiting, localized headache, dizziness, associated with a fall, the backward displacement of the head, I surmised some cerebral disorder. His mind was at times clear—always clear, the family reported; but to me he appeared semi-conscious, would reply tardily to questions put to him, and made considerable effort to make known his wants.

Motility, although impaired somewhat by the long sickness and inability to retain food, was not limited to any special extremity or side; face and tongue were regular on both sides; eyeballs moved lazily; pupils dilated and responded to light. The eyes were dull and heavy. I did not carry an ophthalmoscope with me and so unfortunately could not examine the optic discs.

The tendon and muscular reflexes were exaggerated. Patellar reflexes considerably increased, but no definite ankle-clonus. Apparently no disorders of sensation, although the semi-stupor which he was in may have influenced this examination. He evinced great pain when the head was turned or when the occiput was percussed, but did not feel any other painful sensations.

Pulse was full, regular, uniform, ranging from 78 to 85 per minute.

Temperature, 98·7° F.

Urine contained neither sugar nor albumin and was not increased in quantity.

Bladder and rectum performed their functions normally, and up to March 17, 1894, there was no change in his sexual power.

My suspicions of a cerebral growth were satisfied, and taking into consideration the fall on the occiput, with a history of a preceding attack of *grippe*, I ventured the diagnosis of *cerebellar abscess.* He was in no condition for an operation and palliative measures were resorted to.

A troublesome hiccough set in a few days after my visit, also a paresis of the left arm and leg; both of these symptoms increasing in severity from day to day.

Incontinence of urine, necessitating catheterism, and constipation also made their appearance. He was conscious up to the last, and at intervals would make inquiries about local affairs. On awakening from sleep he would be flighty for a few seconds, then would be calm and composed.

He died on April 11, 1894, and on the following day I was telegraphed for to perform an autopsy.

The head only was examined, as it was deemed unnecessary to make a complete examination.

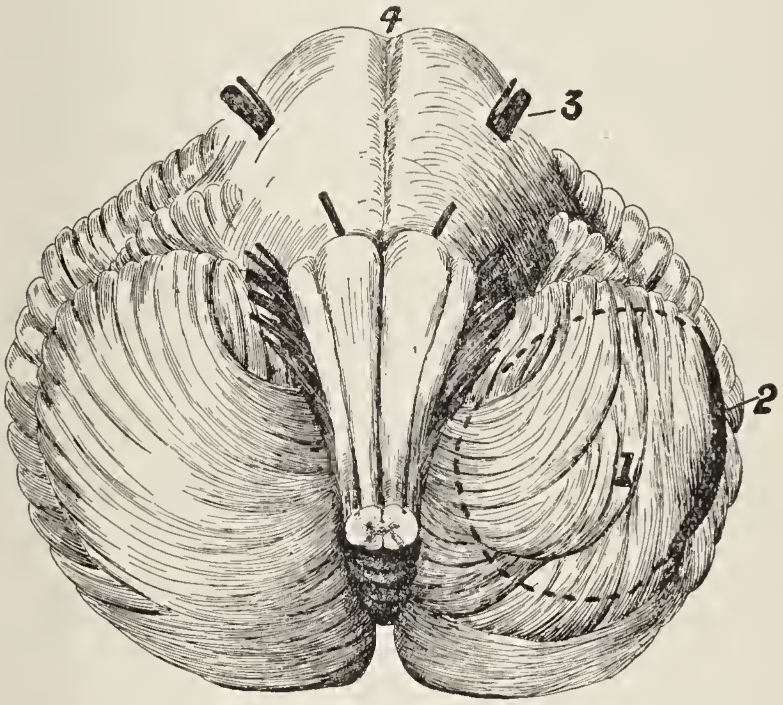

Fig. 3, Case III.—1, abscess, denoted by the dotted line; 2, opening of the abscess; 3, trigeminus nerve; 4, pons.

The scalp was quite thick and bound quite firmly to the skull. No hæmorrhages or discolorations could be detected over the occipital region, the result of the previous falls.

The calvaria was somewhat thicker than normal; not adherent to the dura. The sinuses were engorged with venous blood, and the pial vessels were markedly injected, but not abnormally so. The pia was easily removable; there were no opacities, and the Pacchionian bodies were not enlarged.

The cerebro-spinal fluid was clear, amber-colored, and of the usual quantity. The cerebrum was carefully removed from the fossa, and on cutting the tentorium and attempting to roll out the cerebellum so as to cut the spinal cord, a thick, creamy fluid burst through the lateral walls of the left cerebellar hemisphere.

The brain was carefully placed on a platter and sections cut through the cerebrum, longitudinally and transversely. A small quantity of fluid was found in the lateral ventricles; no hæmorrhages, no inflammatory conditions, and no diseased condition of the cerebral arteries could be detected. The cerebellum, however, was of more interest.

The right side was firm and elastic to the touch, while the left hemisphere was boggy, and on the slightest pressure a thick, creamy pus exuded from a large longitudinal opening in the lateral wall of the lateral lobe. The opening was perhaps one inch in length, and opened into an irregular cavity about the size of a small hen's egg. The walls of the abscess cavity were roughened, irregular, and had a reddish hæmorrhagic appearance indicative of a former congestion or capillary hæmorrhage. The pus was not examined bacteriologically and its bacterial contents can not therefore be given.

Analyzing this case briefly, we find present the three cardinal symptoms of brain disease: localized headache of the bursting variety, dizziness, and cerebral vomiting—*i. e.*, vomiting without nausea, without warning, and forced from the mouth (projectile). The other cardinal symptom of brain disease—tumor, choked disc, or optic neuritis—was unfortunately not sought for, and must therefore be left out of consideration.

The history of two severe falls upon the occiput, with symptoms of pain and numbness for a few days following, the staggering gait, tenderness and rigidity of the neck muscles, with head drawn backward, pointed to some cerebellar affection.

The gradual implication of the left side of the body, semiparesis, consciousness up to the end, and the behavior of the reflexes, strengthened the theory of cerebellar disease. The diagnosis of abscess was made upon the theory that as, prior to the falls, he had been sick with an infectious disease, and as septic processes are liable to be lighted up consequent to such injury, the idea of abscess seemed to me both plausible and possible. Trauma is recognized as one of the most prolific ætiological factors of brain abscess, the shock seeming to tear and bruise the tissues directly under the seat of injury, causing hæmorrhage, inflammation, disintegration, and finally necrosis of the nerve elements. The presence of pyogenic bacteria in the system, and the cordial invitation which such a focus of softening and dissolution extends to the gallant germs, results in the speedy formation of a suppurating abscess.

CASE IV. *Clinical Diagnosis: Tuberculosis; or else Abscess of Cerebellum.*—L. L., female, unmarried, aged twenty-three years; height, five feet four inches and a half; weight, one hundred and twenty-four pounds; complexion, dark; constitution, delicate.

Antecedents.—Father and mother both living and healthy, aged forty-six and thirty-eight years respectively; three brothers and two sisters likewise healthy.

Paternal grandparents: Grandfather living and healthy, aged seventy-four; grandmother died of typhoid fever, aged sixty-one years.

Maternal grandparents: Grandfather died of paralysis, aged seventy-two; grandmother died of cirrhosis of the liver, aged fifty-seven years.

No history of tuberculosis among near or distant relatives could be elicited.

Early History.—When a child she had measles, chickenpox, diphtheria, scarlet fever, and malarial fever. When nine years of age she fell over suddenly and injured her back, a large bunch appearing over the lumbar region a little to the right of the spinous processes. She was unconscious for twenty-four hours, and suffered great pain. Curvature of the spine developed, and for a year she was unable to walk about. Was vaccinated when fourteen years old, and immediately her back grew worse, the deformity increasing until a right scoliosis was well marked. She wore braces for some time and improved in general health, so that the spinal irregularity was scarcely noticeable. When nineteen years of age she had a severe attack of pneumonia, and every winter since then has had heavy colds with cough, expectoration, symptoms of fever, and periods of extreme weakness. At the same time she began to notice a dull, heavy ache over the occiput extending down the spine, accompanied with vomiting spells and dizziness; was taken with fever which ended suddenly, and began to improve and increase in weight (winter of 1891). The following winter she again had the occipital headaches, but without vomiting or dizziness. In January and February, 1893, the same familiar headaches reappeared and as quickly subsided, leaving her in comparatively good health for the remainder of that year. On July 4, 1893, she weighed one hundred and thirty-six pounds. The week before Christmas of 1893 she was taken with a slight attack of the then prevalent *grippe.*

Her present sickness she dates back to January 1, 1894, when, without any warning whatever, she would vomit forcibly a watery, stringy fluid. She narrates that while going through the figures of a quadrille one evening in January, 1894, a convulsive act of vomiting overtook her on the dancing floor. Headaches, confined mostly to the occipital region and extending down the spine to the middle of the back, made their appearance, sharp and piercing at first, then would gradually wear away. Along with the headaches she would have dizzy, staggering spells, and on rising from a chair would feel like falling backward. On walking she would constantly pitch to the left side, and would put out her left hand to save herself. On several occasions her left knee and leg would give way, precipitating her to the ground. Accompanying these symptoms she would experience, two or three times daily, a feeling of extreme heat come over her which would be followed by light chills. Her face would redden, flush, perspiration would break out, and in a short time she would complain of the room being too cold. The headaches, vomiting, and vertigo growing more intense, she was referred to me by Dr. C. C. Frederick on April 21, 1894, for special treatment.

Status Præsens.—April 21, 1894, I found her a fairly well developed, bright, intelligent, and active girl, with no indications of any mental disturbance.

Head.—Not painful on percussion except over the occiput, and when pressure is exerted over the left occipital region she complains of severe pain, just as if something were crushing her head, or as if the back of her head were falling out. Her hair, which is long and beautiful, is coming out rapidly, and many gray hairs have appeared within the past year. Her face when she entered the office was cold, pale, and anæmic, and before leaving it was hot, flushed, and feverish.

Eyes.—No disturbances of motility, but when they are fixed to the right or left she experiences a pain over the occiput. Pupils react to light and accommodation, and are dilated. No nystagmus and no appearance of any optic neuritis (choked disc).

Ears.—A buzzing noise has been heard at times, and she has sometimes experienced an itchy feeling in both ears. No deafness.

Nose and Mouth.—Nothing abnormal about the sense of smell or taste. The tongue protrudes without deviation and is not coated.

Appetite poor.

Motility.—A staggering, uncertain gait is manifest, and her mother reports an inclination of wheeling to the left, and has repeatedly chided her for the unladylike way in which she walks. Standing with her eyes closed, she tends to fall backward. Inco-ordination of the hands or legs can not be detected.

Right-hand grip, as measured with the dynamometer, 50; left, 48. Muscles are rather flabby.

Sensation.—No distinct abnormities of sensation can be detected.

Reflexes.—Somewhat, though slightly, increased, especially the patellar tendon; no ankle-clonus. Superficial reflexes not exaggerated.

Internal Organs.—Heart and lungs appear undisturbed. Pulse, 80, regular and uniform; temperature, 37·8° C.

Bowels regular. Urine, high specific gravity; no albumin, but shows presence of sugar.

General Symptoms.—She sleeps very poorly because of the pulsation in her head. When she turns over she feels as if something heavy had turned over in her head with a thump.

Menses irregular; flows profusely for eight or nine days. She has lost much in weight since January 1, 1894, her clothes all becoming too loose and baggy. Her hands and feet are generally very cold and covered with cold perspiration, and yet her face will be hot and flushed.

The severe headaches, projectile vomiting, and vertigo, along with occipital pain and tenderness, inclination to fall backward, and of veering to the left, the sudden giving way of the left leg, ataxic gait, with general sensibility and reflexes but little if at all disturbed, indicated some cerebellar growth, seated in all probability in the left lobe. The slow growth, previous history of the patient, and fever phenomena suggested to me the presence of a tubercular nodule undergoing softening and disintegration.

Without disclosing my diagnosis to the patient or her parents, I put her on a palliative and constructive treatment, which seemed to relieve and benefit her for about five weeks. The symptoms became suddenly more severe, and feeling pretty confident that if an operation could be secured an abscess cavity would be found, I entreated the parents to yield to what seemed the only procedure that would offer any hope of saving the daughter's life. Consent was obtained provided the operation would not be performed unless it was reasonably certain that it would bring relief, and the patient was transferred to the Sisters of Charity Hospital. A thorough examination made June 19, 1894, revealed the following additional facts:

She feels as if her chin were being elevated and the head drawn backward. At night the head digs deep into the pillows. Pressure over the occiput provokes a feeling of nausea.

Sensation.—Some slight disturbances of sensation have presented themselves, as delayed sensation over the forehead and areas of hyperæsthesia about the face and hands, which perhaps arise from the state of mind occasioned by her surroundings. Her eyes were tested to-day by Dr. A. A. Hubbell, whose report is here appended:

"R. and L. hypermetropia, 0·75 D.; no optic neuritis; esophoria, 3°; abduction, 8°; adduction, 25°, one trial, which can be brought up to 40° or 45°. There is nothing here to account for symptoms."

Measurements of the arms and legs give the following results:

Circumference of left arm:	Distance from internal condyle of humerus:	Circumference of right arm:
9 inches.	9 inches.	9 inches.
$8\frac{1}{8}$ "	6 "	$8\frac{3}{8}$ "
$8\frac{1}{8}$ "	3 "	$8\frac{3}{8}$ "
Left forearm:		Right forearm:
8 inches.	3 inches.	8 inches.
$6\frac{7}{8}$ "	6 "	$6\frac{7}{8}$ "
$5\frac{1}{2}$ "	9 "	$5\frac{5}{8}$ "
Circumference of left thigh:	Distance from internal condyle of femur:	Circumference of right thigh:
$15\frac{5}{8}$ inches.	6 inches.	$15\frac{6}{8}$ inches.
$13\frac{5}{8}$ "	3 "	14 "
Left leg:		Right leg:
$12\frac{2}{8}$ inches.	3 inches.	$12\frac{6}{8}$ inches.
$12\frac{6}{8}$ "	6 "	$13\frac{6}{8}$ "
$12\frac{8}{8}$ "	9 "	13 "

Strength of hands: Right, 40; left, 40. The strength of the legs, as measured with the pedo-dynamometer, shows: Right leg, 30; left, 36.

The temperature has ranged from 38·5° C. to 40° C. Pulse, 70 to 85 a minute. Urine shows now no trace of sugar.

The surgeon in charge, Dr. H. Mynter, desired to keep her in the hospital for a few days before operating and to watch her closely, so that in case she should fail rapidly an operation could be performed at once. To our surprise, instead of failing she seemed to improve, the vomiting was less frequent, the head less painful, appetite improved, the fever symptoms were less marked, and her general health was gaining. Encouraged by this change in her symptoms, the parents removed her to their home and all thoughts of any operation are now relegated to dreamland.

My diagnosis and mode of relief, so nicely planned and specified, have provoked some twitting remarks, but nevertheless I am positive that the diagnosis was correct, and the operation would have sustained me.

I have seen the patient several times since she left the hospital, and still find left occipital tenderness, unsteadiness of gait, vomiting and vertigo. Her general physical condition is below par; she is pale, anæmic, and still complains of feelings of heat and cold.

I have at no time observed any manifestation of hysteria or any type of malarial fever, and am confident that her cerebellum harbors a latent tubercular nodule.

TRAUMATIC CYST OF THE BRAIN

FROM AN INJURY RECEIVED TWENTY-FIVE YEARS BEFORE.

EPILEPSY; OPERATION; RECOVERY.

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SURGEON TO THE UNION PACIFIC AND DENVER AND GULF RAILROAD COMPANY.

HISTORY AND NEUROLOGICAL REPORT BY DR. ESKRIDGE.

Mr. L. L. S., thirty-five years of age, born in Tennessee; married; white; tobacconist by occupation; has lived in Colorado eleven years. Consumption in relatives of both father and mother. Mother suffers from migraine. There are no other points of importance in the family history. The patient's health in childhood was good, with the exception of migrainous headaches, which began when the boy was three or four years of age, and from which he suffered two or three attacks each month. When he was nine years old he was kicked on the head by a colt only four months old, the hoof striking about an inch and a half above the external third of the left supraorbital ridge and fracturing the skull. He was rendered unconscious by the blow, and considerable brain substance was lost through the wound. The depressed bone was not elevated, but after the physician had passed his finger into the brain he stitched the soft parts together. The boy regained apparent consciousness in about twenty minutes, and within a month or two after the injury he was able to be out and play with the children of the neighborhood, showing no obtrusive evidence of mental impairment. While to the parents there seemed to be no mental disturbance after the first shock of the blow had passed away, yet, in fact, consciousness was blurred for some time. The first thing that the patient remembers after the accident was his going to school, which occurred eleven months subsequent to the receipt of the injury. He remembers distinctly playing with the colt before he was kicked, and the name of the boy who was with him at the time, but does not remember being injured, nor can he recall the slightest incident of his experience during the first eleven months that elapsed subsequent to the injury, although for nine months of this time he was to all appearances in a normal mental condition. His health continued good up to his nineteenth year, and even the headaches from which he had suffered before the head injury rarely occurred. At his nineteenth year, after exposure to the sun's rays, he began to complain of constant headache, and suffered from occasional attacks of unconsciousness, during which he could not talk, but simply made a gurgling noise in the throat. On one occasion he had a series of these, each lasting for a few minutes and recurring about every hour for a number of days, but they gradually lessened in frequency, until the end of the tenth or twelfth day, when they ceased. After the cessation of these spells he was apparently as well as before they occurred. Between each attack of this series, in the early part of it, he lay in a semiconscious condition, apparently taking no notice of anything, simply eating and drinking when food and liquids were placed in his mouth. As the attacks became less frequent, consciousness returned during the intervals. Since his nineteenth year he has had three general convulsive seizures on three different occasions, before the occurrence of the convulsions for which Dr. McNaught was called to see him. The three convulsions referred to were brought on by indulgence in alcohol and exposure to the sun's rays.

The patient's mental condition seemed to be unimpaired up to about his twenty-fifth year, when the first convulsion precipitated by alcoholic indulgence occurred. From that time on memory and self-control seemed weakened, and he became more irritable and dependent.

On Monday, September 6, 1894, after indulging in alcohol, he had a severe convulsion and lay unconscious for thirty-six hours. On the evening of the next day he had two convulsions which were general and quite severe. On the third day he had eleven general convulsions, and on the fourth, fifteen, all of which were severe, and during the intervals between none of them did he show any evidence of returning consciousness. After the convulsions ceased, on Thursday, September 9, 1894, he remained in a semiconscious condition until the following Sunday night, when I saw him, in consultation with Dr. McNaught. At that time, if left alone, he lay in a stupid, drowsy condition; if roused, he would answer a question, but his answers were unreliable. On account of his mental condition the examination of the special senses and general sensory phenomena was unsatisfactory. The knee jerks were found increased, the left slightly more than the right; ankle clonus was absent; tendo Achillis slight; plantar reflexes were present, but slight; cremaster and abdominal reflexes were absent; the deep reflexes of the arms were about normal; dynamometer—right, 140; left, 120. There was no paresis or paralysis of any muscles, nor involvement of any of the cranial nerves. The pupils were normal in size, and responded readily to light and accommodation. Vision seemed to be perfect. The ophthalmoscope showed no distinct change in the retinæ or optic nerves, although the left disc was apparently hyperæmic, and the edges of the nerve were a little whiter than normal. Hearing: watch—right, $\frac{4}{12}$; left, $\frac{12}{12}$; the tuning fork was heard better in the right ear. Temperature was 99° F.; pulse, 80; respiration, 20. Constant headache, localized in the left frontal region, was complained of. Mental hebetude was well marked. The presence of the depressed fracture of the frontal bone, together with the localized headache, was the only evidence of focal brain lesion. It seemed to us that the most probable lesion to give rise to the symptoms in the present case was a localized meningitis caused by depression of bone. An exploratory operation was advised, and readily acquiesced in by the family.

OPERATION AND SUBSEQUENT HISTORY. BY DR. McNAUGHT.

The patient was transferred to St. Luke's Hospital on September 12, 1894, the day preceding the operation. The hair was removed from the head and face and the parts thoroughly cleansed with antiseptic soap, and the head incased in bichloride dressings, in which the parts remained until just immediately before the operation, when they were again cleansed with an antiseptic solution and washed with ether. A semilunar flap was made, which included all the old cicatricial tissue and extended two inches posterior to the original fracture. The flap was turned backward and an effort made to separate the pericranium, but this was found to be impossible over the seat of the old fracture, as the pericranium was continuous with the fibrous membrane which extended into the brain cavity. The bone was found depressed, and covering the opening in the bone was a dense membrane composed of fibrous tissue. This was also continuous with the pericranium and with the fibrous membrane that extended into the brain along with the depressed bone. On dissecting the parts, it was found that at the time of the injury a fracture had occurred in the bone, triangular in shape, about an inch in its longest diameter and three quarters of an inch at its base, with the apex of the triangular piece of bone depressed deep into the brain substance, almost at right angles to the skull. Connected with the depressed bone a cyst was apparent, and the trephine was applied about an inch posterior to the base of the fracture and a button of normal bone removed. By the use of the bone forceps the depressed bone was loosened, but on attempting to remove it a distinct convulsion was observed, involving all the muscles of the extremities as well as of the face. After removing the spicula of bone a large cyst was discovered, occupying a space in the frontal lobe about two inches and a half in its longest diameter by one and a half to two inches in its transverse. The contents of the cyst were a straw-colored watery fluid, and the walls of the cyst were firm and fibrous in nature. After evacuating the contents of the cyst the inner surface of the sac was scarified and the cavity packed with iodoform gauze, the scalp returned to its normal position and sutured, sufficient room being left, however, to permit of repacking the cyst cavity. After dressing the wound the patient was placed in bed and rapidly reacted, very little shock being apparent. The temperature did not rise above 100° F., and usually remained at about 99° F. At the end of four days the dressing and packing were removed, when it was found that the cavity of the cyst had been reduced to about one half of its original size. The cavity was again repacked and the wound redressed, and at the end of eight days from the operation it was found that the cavity was practically obliterated. The patient's mental condition rapidly improved within two or three days after the operation, and at the end of two weeks he was able to leave the hospital feeling quite well.

On April 6, 1895, the patient reported that he felt quite well, was free from headache, and his memory and powers of mental concentration had much improved. During the latter part of January of the present year, after indulging in two or three drinks of whisky one day, he awoke next morning feeling languid and suffering some from headache; found the tongue bitten, and his pillow bloody. Four days later, after taking four drinks of beer, he had a similar experience. Since then he has not indulged in alcohol, and has been free from convulsions and discomfort in the head.

The convulsions of recent occurrence evidently have been less severe than those he had before the operation, as he states that formerly a fit left him in a confused mental condition for several hours.

The recurrence of the convulsions in this case after the removal of the cyst teaches us that, after getting rid of the original cause of epileptic seizures, the fits may recur from trivial excitants. The presence of a foreign body, as a cyst or a tumor, in the brain for a length of time gives rise to structural changes in the surrounding brain substance, and probably to a greater or less extent interferes with the normal functioning power of the cells of the entire brain, so that an unstable and weakened condition of the brain remains for an indefinite period after the removal of the offending agent. Besides, when the growth is in contact with the membranes a thickened and inflamed state of the meninges is left behind for some time. In cases of convulsions due to the presence in the brain of a tumor, cyst, or depressed bone, after the removal of the cause of the original convulsion, the same precautions should be employed in avoiding all the ordinary exciting causes of the fits for some time after the operation as before it. Further, it is good practice to place such cases upon one of the bromides for several months to a year or two after the removal of the growth, in order to lessen the abnormal irritability of the brain cells. As alcohol, both before the operation and after it, has been the apparent exciting cause of all the convulsive seizures, it must be entirely proscribed in this case.

UNINTENTIONAL NEGLECT IN THE TREATMENT OF SURGICAL DISEASES.*

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THERE is no reproach so severe in the eyes of a physician as the reproach of neglect; and indeed the man who is careless of the welfare of those intrusted to his keeping, who can lightly let slip any opportunity which might change favorably the course of disease, does not deserve fellowship in the noble brotherhood of medicine. Yet one of the commonest faults of the physician is a kind of unwitting neglect where action is delayed in cases of unrecognized or dimly suspected gravity. Such dangerous delays occur in the practice of all the branches of medicine, but I shall speak here only of a few of the diseases known as surgical, drawing my conclusions and citing instances entirely from personal experience.

First, then, cancer. This hideous malady, no matter where situated, is always a surgical disease. It is not in every case amenable to operation, but as yet no medicine has been of the slightest avail. On the other hand, complete timely removal of the diseased area is known to give promise of freedom from relapse. Yet the patient rarely consults the surgeon until systemic poisoning has occurred, the intervening time having been largely taken up with worse than useless attempts to cure the trouble with salves, internal medication, or by means of *faith*, the latter form of therapeusis doing, perhaps, less harm and giving more mental comfort than either of the others. This is all too frequently the fault of the physician. I confess it makes my blood boil to hear, as I often must, the diagnosis of malignancy deferred because there is "no cachexia." It seems to me very like waiting for uræmic convulsions or coma to establish the diagnosis of renal trouble.

Take, for example, cancer of the tongue. If one sees the case early, there is probably a small lump or even a flat ulceration which gives no pain. No lymph nodes are enlarged and the patient feels uneasy simply because he knows that the sore exists. Yet, if antisyphilitic dosing for a week and the removal of sharp or irritating teeth are not at once followed by noticeable improvement, the case is one for excision with a wide margin of apparently healthy tissue. The freezing microtome will enable a diagnosis to be made in a very few moments, when more extensive operation at the same sitting may, if necessary, be undertaken. It has been my lot to see cancer of the tongue treated nearly invariably too long for syphilis. Even if there is a history of this disease, it does not forbid the diagnosis of cancer, but makes it more probable. Cancer is prone to develop on a leucoplakial tongue.

CASE I.—C. G., a gentleman forty-two years old, came to me about a year ago with a nasty, foul-smelling sore on the left side of his tongue near the tip. It was hard and was sloughing in the middle. An indurated lymph node could be plainly felt near the left extremity of the hyoid bone. A sharp and jagged tooth seemed to be the irritating cause of the sore. For over seven months an energetic physician had treated this man with mercurial inunctions and iodide of potassium. He still insisted that because the man had said that he once had had a chancre the sore on the tongue must be syphilitic. So sure was he of his diagnosis that he had not even advised the extraction of the sharp tooth. This was done soon after I saw him, and I then removed the left half of the tongue, together with the enlarged glands of the neck. The disease was, however, so extensive that a relapse occurred in the neck within three months, and in half a year the man was dead. A common enough history, but it teaches a lesson which seems hard to learn, for all its simplicity.

Cancer of the breast is a disease which seems to cause more than its share of culpability among medical men. If there is one ailment above another where an early working diagnosis is easily made it is this one. Yet, how horribly often do we hear men give the advice to wait for this or that symptom, in the meantime quieting the poor patient with plasters and salves! It is bad enough to listen to doubts as to malignancy because the nipple is not retracted, or because there is no discharge or no immobility of the tumor; but when an apparently intelligent practitioner doubts the existence of a cancer until the armpit is invaded, what shall we say? Every recent graduate ought to know better than to look for such a sign. It is almost or quite as bad as to wait for a board of health report before instituting treatment in a malignant case of diphtheria.

CASE II.—A stout woman, Mrs. C., thirty-eight years old, consulted me some months ago regarding a lump in her right breast. It had first been noticed a year before, and from that time she had been constantly under the eye of her physician. The treatment had been by medicines, lotions, etc. Finally, becoming a little suspicious, she came from her southern home to New York for an opinion. I found a tumor as big as a large egg adherent to skin and muscle, with numerous enlarged lymph nodes in both axillæ. The woman was slightly corpulent and there was not a sign of cachexia. I amputated the left breast,

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* Read before the Harvard Medical Society of New York, April 27, 1895.

with the axillary contents and the pectoral fascia, also removing a lymph node from the left armpit. It was cancerous. The friends of the patient, learning of the bad prognosis, advised against further operation and took her home to die.

The progress of this case had been slow, and I am sure its outcome would have been very different had the physician observed his patient for a month instead of for a year. Instead of insisting on an exploratory incision he pronounced the tumor "nothing." Bull has tersely referred to this very common soothing expression of opinion by the remark that "a lump in the breast is never a 'nothing.'" In the same paper (*Medical Record*, August 25, 1894) he has also called attention to the frequent malignant degeneration of innocent growths. The physician who sees a breast tumor early should, in these days of advanced and advancing medical education, consider himself responsible for results if he cause delay of more than four weeks in active methods of attack.

If we condemn delay in cancers which can be seen or easily felt, what shall we say of those where the trouble is situated internally, as, for example, in the stomach? The more progressive members of our profession, recognizing that the disease is one to be removed by operation where a sufficiently early diagnosis can be made, have bent all their energies toward accomplishing this early recognition, and very satisfactory progress is being made. The examination of the stomach contents by chemical and other means, the gastrodiaphane, and other modern instruments and methods should enable us to make up our minds as to the *necessity for exploratory incision* before a tumor is palpable. If one waits until a tumor shall develop which is large enough to be felt, or until a stout patient shall have emaciated sufficiently to enable one to make satisfactory palpation, the case is already hopeless. If we are to have success in this field of surgery we must learn that early exploratory operation in suspicious cases is demanded. If on section nothing is found, then in these aseptic days the patient has risked little except a weakening of part of his abdominal wall, and if a cancer is found the conditions for its removal are better than they ever will be again. I have never seen a patient die of an exploratory section where no fatal disease was present, and I believe such cases must be exceedingly rare.

As an example of the waiting system, I may here refer to

Case III.—This was a case of carcinoma of the transverse colon in a man of about forty-two years, where for a whole year the patient was under medical observation (*N. Y. Med. Jour.*, September 1, 1894). He was operated upon by me, and the tumor, with about six inches of gut, removed. The man made a perfect recovery from the operation, and is still free from symptoms due to obstruction, but there will in all probability be a relapse by metastasis, for there were many infected lymph nodes in the mesentery which could not be removed. The growth was a very slow one, and was due to degeneration of an adenoma. A radical cure might have been hoped for had the operation taken place six months earlier.

Intestinal Obstruction.—The next class of cases for attention consists of those where there is obstruction of any part of the intestinal tract. These are urgently surgical, as Dr. J. B. Murphy has said, "as soon as the diagnosis is made." Yet I have seen operation postponed day after day because some symptom indicating the gravest danger was absent; such a sign, for example, as fæcal vomiting. The fact is that when there is persistent vomiting of any kind, with abdominal pain and obstipation resisting high enemata, there must be present some anatomical, inflammatory, or neoplastic change demanding abdominal section. For the progress of the science of medicine I believe it may even be regarded as a misfortune when a patient gets well without operation where there has been foolish delay; for there are always illogical persons who will say that because A. B. got over an attack without the use of the knife therefore X. Y. ought to delay and not submit to operation. But it happens that A. B. suffered from fæcal impaction, while X. Y. has an intussusception which threatens gangrene. However, even X. Y. *may* recover without section by a medical miracle and without thanks to his physician.

I shall never forget one of the first patients on whom I operated for intestinal obstruction.

She was a young girl of nineteen years who was admitted to the hospital, having had no stool for five days. The attack began with a sudden sharp pain immediately after drinking a glass of cold water. There had been almost constant vomiting ever since. When I saw her the temperature was under 100° F., and the abdomen was soft. The girl was conscious and had no severe pain, but vomited incessantly. Had it not been for a wretched, feeble, and rapid pulse her general condition might have been called good. Enema by long tube was almost without result. There was no bloody discharge. It was nine o'clock in the evening. One of my friends, a well-educated practitioner, saw the case with me and advised against operation because of insufficient diagnosis. I disagreed with him, and, though I keenly felt the responsibility, I operated that night, being led to my decision by the patient's miserable pulse and by the vomiting, which, by the way, was not fæcal. Median abdominal section disclosed at once an immense intussusception involving more than two feet of gut. It was gangrenous, and I realized that the case was hopeless. Rapidly walling off the free abdominal cavity, I incised the whole mass to relieve tension, but the girl died the next day. Cases like this have taught me that the gravest forms of intestinal obstruction may exist with little or no fever and without the classical sign of stercoraceous vomiting.

It was my intention to speak here of appendicitis, but the profession has been so long and persistently stirred up on the subject that it hardly seems possible that any one who reads the journals or attends medical meetings should err by delay in this disease. It may not be amiss to repeat, however, that appendicitis may exist without pain or tenderness in the right iliac region. Quite recently I saw two cases where fatal delay occurred because of the absence of this well-known symptom.

Empyema of the Mastoid.—This is far from a rare condition, and it is one of those where the percentage of neglect is perhaps higher than in any other disease. The pus is pent up in a region where spontaneous discharge, with the recovery of the patient, is almost an impossibility. It is, moreover, a region easily and very safely accessible to a skilled operator. Without evacuation, meningitis, thrombosis of the lateral sinus, pyæmia, or some combination of these deadly complications will surely occur. Yet, even in gravely suspicious cases, certain of the very men who make this part of the body the subject for special work and study will advise us to wait for *meningeal irritation*, which is simply the first step into truly dangerous territory.

I have yet to learn a satisfactory reason for delay where there has recently been middle-ear suppuration and where marked mastoid tenderness exists. If there is also fever, in spite of an open ear drum, the way is clear without waiting for any sign of extension of the disease. The stake is a heavy one, being nothing less than a human life; the risk of operation is a comparatively slight one. The opening of a mastoid filled with pus is certainly not entirely devoid of danger, but is absolutely necessary; while, if no pus is present, the procedure is not a particularly perilous one, and it may be productive of good, as, for example, where the bone is sclerosed or eburnated.

I do not wish to go over the whole field of surgery in this strain. I have merely spoken of certain types of disease which are of daily occurrence, and I have tried to show that neglect, unintentional though it be, is a frightfully common fault. The reasons for its existence are various. Probably one of the most frequent is an exaggerated idea of the dangers of the operation itself. It is not that I would belittle the seriousness of major surgical work, but that I wish to emphasize the point that no operation is ever knowingly undertaken by a conscientious surgeon where he believes his remedy to be more dangerous than the malady which is to be attacked. It is a rare thing in these days for an operation to be performed where the surgeon might later wish he had stayed his hand. The opposite state of affairs is, however, unfortunately too frequent. The vast majority of patients afflicted with malignant chronic disease come to the knife in time for palliation at best. Too many cases of appendicitis are first seen by the surgeon when peritonitis or general sepsis already exists. Only too often is a suppuration of the mastoid cells permitted to go on to fatal meningitis under the very eye of the physician.

A few weeks ago I saw a woman who had been for several months treated with caustics and lotions for the cure of a fungating ulcer which began in a little mole on the heel. Her medical adviser disregarded the fact that after each application the granulations sprang up with increased vigor. The patient finally secured the services of a good diagnostician, who at once recognized malignancy and proposed the removal of the growth. When he was about to operate, several skin nodules were found in the leg, and the woman was sent to the Mount Sinai Hospital for amputation of the thigh. It was here that I first saw her. Examination of one of the nodules showed the tumor to be melanotic myxosarcoma. The patient now refused to submit to operation and went home. At last accounts a regular (?) practitioner of this city had guaranteed a cure without the use of the knife.

Another reason for wrong delay may be ascribed to unscientific medical education and a consequent dependence on stereotyped combinations of symptoms learned from books, as a picture of disease. Such knowledge is parrot-like, and he who depends upon it must be misled and confused by any departure from the fixed nosological type. He is tempted to wait for what he considers a clearer expression of the disease as he has learned it, and the precious time is gone.

Accurate diagnosis is a scientific and most satisfactory thing. Treatment without diagnosis is foolish and often worse; but there is in surgical disease a golden middle way too seldom traversed where the Gordian knot may be loosed by means of the scalpel. I refer to the making of an intelligent *partial diagnosis*—that of "case for operation." I do not believe in carelessly opening the living human body as a child breaks his toy, just to see "what's inside," but if there are logical grounds to suspect that there is something inside which ought to come out, delay can rarely be productive of good.

33 East Thirty-first Street.

CREOSOTE
AS A SPECIFIC IN TUBERCULOSIS
WHEN USED IN LARGE DOSES.

By JOHN R. CONWAY, M. D.,
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Nearly three years ago, having become convinced that the use of creosote in large doses was the best treatment in pulmonary tubercular disease, and the only method that could be safely used with any certain beneficial effect, I had the opportunity to use it in a sufficient number of cases to demonstrate that it certainly had the power to absolutely check the progress of the malady, and in many cases, when used early enough and continued for the proper length of time, to be even curative. I have not confined my observations to the action of this drug on pulmonary tuberculosis alone, but have used it extensively in almost all forms of the disease, including the peritoneal, joint, bone, glandular, and laryngeal varieties. Out of nearly four hundred cases treated in private practice and in Bellevue Hospital I shall give the histories of a few typical ones illustrating the almost specific action to be expected. So far I have not been disappointed in a single instance, and the results have been more than satisfactory. It seems certain that with the more general use of creosote in the manner that the cases quoted here have taken it, the conclusions of Sommerbrodt will be confirmed by every one persevering enough to follow his directions. I have had no difficulty in getting the stomach to dispose of twenty-minim doses without any unpleasant symptoms to the patients, many of whom before commencing the treatment suffered from intense gastric irritation with vomiting and indigestion. Great stress must be laid upon the method of administration and the quality of creosote used. My invariable practice now is to prescribe it in capsules mixed with cod-liver oil in the proportion of one to two. Two sizes of capsules are used, the smaller one containing two minims of creosote and the larger four minims. The latter makes a medium size which most persons can readily swallow, and has the advantage of being of almost the same price as the smaller one.

The dose should always be given immediately after eating and never on an empty stomach.

Many have failed to get good results from the use of the large doses of creosote because of the drug being contaminated with impurities; others, from want of patience, expecting too much in a short period, and not making allowance for the expected disagreeable eructations during the first few weeks. Because of these unpleasant symptoms at first produced, but which would surely disappear after persistent use, the treatment has been stopped and condemned as worthless.

To avoid the difficulty arising from using an inferior quality I have the capsules manufactured by a reliable firm, who take the greatest care to get an absolutely pure drug; consequently all my patients exhibit the same results, and none of them have ever had to stop the use of it because of any ill effects upon the digestion.

At the present time the first patient whose case is given in this article has taken more than thirty thousand minims of creosote (in this form) within three years, and he has perfect digestion and a good appetite, and shows no signs of kidney irritation.

Another point to be remembered is that many persons with pulmonary tuberculosis when first seen by the physician are already affected with intense gastric irritation. It is therefore necessary to alleviate this and quiet the stomach before beginning the use of creosote. For this purpose I use bromide of sodium, fifteen grains, subnitrate of bismuth, ten grains, and pepsin crystals, three grains, to be taken every four hours. After twenty-four hours of this treatment the administration of creosote should be begun, first using two-minim doses after each meal, and increasing the amount gradually when the stomach becomes more settled.

It will always be found that after several days complete tolerance will be established, and within four or five days the dose can be gradually increased, until finally the stomach improves in every way, and all irritation with the accompanying indigestion has been relieved.

In regard to the method of increasing the dose, the following rule will be found to work well: begin with two-minim doses three times a day; in acute cases increase the dose by two minims every fourth day until twelve minims are given at one time, then observe the results of the largest dose for several weeks, and, if the improvement is not satisfactory, carefully add two minims more every eight or nine days until a twenty-minim dose has been reached; then persist with this quantity until the symptoms warrant a diminution of the amount. I have frequently used the highest dose for four and five months at a time before decreasing it, with the most satisfactory results. The chronic cases do not, as a rule, require so large a dose, or to have it so rapidly increased. In my average chronic cases the patients use twelve minims three times a day, commencing with the small quantity (two minims), increasing by two minims every six days to eight minims, then every second week to twelve minims, according to the effect.

In every case in the first week or ten days there are troublesome eructations of gas flavored with creosote; but I have not yet seen a single instance where this did not entirely subside after the creosote had corrected the fermentation caused by old indigestion, which it invariably does. This feature of its action has struck me so forcibly that I am now using two-minim or four-minim doses in many cases of dyspepsia and bowel indigestion, with more rapid curative results than I was ever able to get from any other method of treatment. The great increase in the weight of all tubercular patients under this method of treatment is very largely due to the great appetite and perfect digestion they quickly obtain, because of this curative action of the creosote on the functional disorders of the stomach and bowels.

In some cases where the anæmia is profound I also use iron and arsenic, the latter in very small doses—one two-hundredth grain three times a day.

After a short time there is no necessity for the use of cough medicines or, in fact, any other drugs.

At first it was my custom to use creosote inhalations, but I have since dropped this altogether, as it became evident it was unnecessary and sometimes did far more harm than good, causing irritation and laryngeal inflammation.

The treatment now is so simple and the cost so slight that it is within the reach of all, and even the most ignorant can be made to follow it up successfully. One trouble I sometimes experience is that many patients do so well that they do not believe they have consumption, and cease the treatment after five or six months, only to be warned of their folly when the active symptoms recur, and rapid loss of strength and weight brings them back to it more obedient than before. It is well to impress all patients with the absolute necessity for keeping under the influence of the treatment for at least two years, no matter how well they may seem. I am of the opinion that many will require four years' constant dosage before they can safely cease the use of it, while others, who began treatment earlier, before extensive deposits were formed, can be said to be free from danger after two years. It must also be remembered that the expected specific effects take place very much more rapidly in cases diagnosticated soon after the origin of the disease; this is particularly remarkable in acute pulmonary tuberculosis. I have seen the temperature reduced to normal within three weeks, without any rise occurring afterward, in a patient who had been suffering with this peculiar form for less than a month. She was able to leave her bed in two weeks, and was discharged from the hospital at her own request within a month.

After a year of the larger doses the average patient can be kept safe from relapses on about eight minims after each meal, provided no active symptoms are present at the time, as would be indicated by even one degree of rise of temperature.

The first history will illustrate the worst form of acute pulmonary tuberculosis, which had progressed for nearly four months before the large doses were first used. It was apparently a hopeless case, and yet has been one of the most successful.

Case I. *Acute Pulmonary Tuberculosis.*—B. M., aged twenty-one years; no tubercular family history. Before he was taken ill he weighed one hundred and thirty-five pounds, and had always been in good health. The latter part of January, 1892, he first began to complain of cough accompanied by pain in the upper portion of the right side of his chest, and gradually a fever developed, which would be pronounced each night and less during the early part of the day. He was first examined by me in March following, and I then found the whole of the upper lobe of the right lung consolidated. His sputa contained tubercle bacilli in large numbers, and was at times rusty and tinged with blood. His temperature was 104°; pulse, 120; respiration, 36. There were present great general prostration, complete anorexia, severe dyspnœa on exertion, and night sweats. He was ordered to bed, put on easily digested food, and daily doses of antipyretics were used, combined with sedatives. The disease spread rapidly, and within two weeks had involved the lung lower down, almost to the upper border of the lower lobe.

He was losing weight rapidly, and did not go over one hundred and fifteen pounds. The morning temperature averaged 102°, the evening 104° to 105°.

By April 1st the sputa had lost the rusty look and had become purulent, but very profuse. The temperature and other symptoms remained unimproved, the emaciation going on rapidly, and the prostration was so great he could not arise from bed without help. About this time (April 1, 1892) I began to use creosote in two-minim doses and by inhalation, without any noticeable effect. In the middle of April Dr. A. L. Loomis saw him in consultation, and, after a careful examination, confirmed my diagnosis of acute pulmonary tuberculosis, probably becoming general, as he then began to have profuse diarrhœa, with abdominal pains, and the lower extremities became œdematous. He expressed his opinion that the case was a hopeless one and would prove fatal in a short time. There was no improvement in any of his symptoms, the pulse having become weaker and as high as 140, with a temperature of 104° to 105°.

The lung had evidently commenced to break down in places, as evidenced by the physical signs. May 1, 1892, I determined to try the effect of rapidly increasing the dose of creosote by two minims at a time. This I did every fourth day until he was taking twenty minims three times a day.

The result was that within two weeks his symptoms showed a very marked change for the better, the temperature never rising higher than 102°— after the dose had reached twelve minims. May 9th he weighed only ninety pounds. July 15th, when he was able to be out of bed, his weight was a hundred and fifteen pounds, an increase of twenty-five pounds in two months. With the decrease in the temperature the appetite and digestion returned and the patient's general appearance by June 1st was so improved as to be marvelous to his relatives.

The cough continued severe and the expectoration profuse. July 15th: Temperature at the highest was 101° at night and frequently only 99° in the morning. He was strong enough then to be dressed and move about his room, but of course was very weak and easily fatigued.

The physical signs in the lung showed that as soon as the fever decreased the active involvement of the lung ceased, and the consolidated area slowly resolved in part, but there were still numerous bacilli present in the sputa.

August 15, 1892.—Morning temperature, 99°; evening, 100°; weight, a hundred and fifteen pounds; cough and expectoration less, but still very troublesome; no night sweats, and strength gradually increasing. The anæmia, which had been profound, was getting less marked under the administration of tincture of the chloride of iron. During this month, as the temperature did not fall to normal, I increased the dose of creosote to twenty-two minims three times a day.

September 15th.—Improvement continues, the temperature being often normal in the morning and 99·5° at night. The large doses kept up.

October 15th.—Temperature frequently normal all day, but at times there is a slight rise in the evening. The consolidated area decidedly less, but still distinctly marked.

November 15th.—Weight, a hundred and twenty-seven pounds; temperature normal at all times; tongue clean; appetite good. Patient able to be out of doors and takes regular daily walks. Expectoration growing less during the day and only troublesome after first getting up in the morning. Dose of creosote diminished to eighteen minims three times a day.

January 15, 1893.—Weight, a hundred and thirty-one pounds. General condition greatly improved; he has been able to be out of doors every day during the winter. The dose of creosote is still the same. The cough is infrequent and the chest is entirely free from râles, but a consolidated area about two inches in diameter can be found at about the angle of the scapula posteriorly. The temperature has remained normal at all times. The urine has been carefully examined and found normal.

January 15, 1894.—One year has elapsed since the last note, and during this time the creosote has been gradually diminished to eight minims three times a day, which now seems to hold the disease in check; the temperature remains normal and the consolidated area has diminished about one half, but can still be marked out. There is no cough or expectoration, and he feels in good health. The weight is now a hundred and thirty pounds.

For the past six months repeated examination has failed to find the presence of tubercle bacilli in the expectoration.

May 1, 1895.—The patient has been constantly using eight minims three times a day. The consolidation has almost entirely disappeared, but, although advised to cease treatment for a time, he is too timid, and still persists. He weighs a hundred and thirty-two pounds and is in as good general health as he had ever been before being taken ill with this disease. He has no cough and no expectoration. Temperature normal.

CASE II. *Chronic Pulmonary Tuberculosis.*—F. B., aged twenty-three years, first noticed that he had a cough and began to lose weight in December, 1891. His symptoms did not trouble him very much excepting the gradual emaciation, the cough which could not be checked, and loss of strength, which was progressive until October, 1892, when he had a severe hæmorrhage from the lung. This was repeated four times to January 30, 1893, when he first came under my treatment. Previously to his illness his weight was a hundred and forty-five pounds. When examined by me he weighed a hundred and twenty-five pounds; he had just had a large hæmorrhage, and his temperature the following day was 103°. Night sweats had been present for about three months. The expectoration had been increasing and the cough more troublesome. Physical examination showed both apices consolidated, the right side more so than the left, but no cavities could be made out. The use of creosote was begun at once and run up to sixteen minims for a dose in four weeks, at which time the temperature became normal and remained so. In six weeks he weighed a hundred and thirty-five pounds; had had no more hæmorrhages, the night sweats were checked, his cough and expectoration lessened, and his general appearance became one of health. He was allowed to remain on the sixteen-minim doses for six months longer, and then the quantity was gradually decreased by four minims every two months until the last six months of treatment, when only four-minim doses were used. For the past six months he has ceased the treatment and remains in perfect health (March, 1895).

He now weighs a hundred and fifty pounds, much more than when in ordinary health before the onset of the tuberculosis.

Case III. *Chronic Pulmonary and Laryngeal Tuberculosis.*—A. M., aged sixty years, was first seen by me in January, 1893. He gave a history of having had a chronic cough with expectoration for the past three years. At times he would have night sweats and would be flushed and feverish in the evenings. Within two years he had gradually lost weight to the extent of twenty pounds. Early in 1891 his voice became husky and the cough frequent and irritating; this increased month by month until 1892, when he was unable to talk above a whisper, the voice being completely lost. He had been going to various throat specialists, none of whom gave him any hope of regaining his voice. On examination I found both apices of the lungs consolidated to a slight extent and evidences of chronic bronchitis. The evening temperature averaged 100°. Weight, a hundred and twenty-five pounds. Anæmia pronounced, anorexia and indigestion present. Laryngoscopic examination revealed a considerable infiltration on either side of both vocal cords, the left side more markedly swollen and the left cord pushed toward the center and incapable of motion; no ulceration present, but the whole larynx chronically congested.

Dr. C. C. Rice examined his throat later and gave me very little hope of being able to effect a cure, saying the infiltration was evidently tubercular, but advised local and constitutional treatment.

I began at once using four minims of creosote after each meal, and within one month increased the dose gradually to twelve minims, at the same time spraying the larynx with five grains of nitrate of silver to the ounce of water every third day, allowing him to use frequently a sedative spray. Iron and arsenic in small doses were also ordered.

In three months his general condition had very greatly improved, the cough and expectoration were much less, fever was entirely absent at all times, appetite and digestion were normal, and the weight had increased to a hundred and forty pounds. The voice had begun to return, the infiltration in the larynx was very much less, and the left vocal cord moved to a slight extent when an effort was made to phonate.

October, 1893.—All the improvement has continued, the voice now being quite distinct but husky. Weight increased five pounds; infiltration in larynx continues to lessen. Creosote diminished to eight minims three times daily.

January, 1894.—Continues to do well, the voice growing more distinct each month and the general appearance of the larynx more normal. He is able to talk distinctly and loudly, but is somewhat hoarse. The cough has almost ceased, expectoration disappeared; weight, one hundred and fifty pounds; apices slightly consolidated, but markedly less than a year ago; treatment continued.

Case IV. *Tubercular Peritonitis simulating Appendicitis; Operation; Diagnosis and Recovery.*—W. McFarland, aged twenty-seven years, admitted to Ward 5, Bellevue, June 9, 1893. Sister died of pulmonary tuberculosis. Five months before admission he began to suffer from pain in the region of the cæcum. Having been carefully examined by several of the visiting staff, it was concluded that the patient was suffering from an ulcerated appendix, which had not yet perforated, and that an operation for the removal of the appendix was urgently indicated because of the frequency of the inflammatory attacks. Accordingly, agreeing as to the diagnosis, I proceeded to operate (July 15, 1893). On opening the peritoneal cavity I was surprised to find the cæcum, ascending colon, small intestine, and parietal layer of the peritonæum covered with small, round, whitish, elevated growths, evidently a tubercular inflammation, which was more marked in the region of the cæcum, which was adherent to the surrounding structures, and the appendix vermiformis lay below and beneath the cæcum, closely adherent to it, but showing no signs of disease. There was no fluid in the peritoneal cavity; so, after a careful examination, the opening in the abdomen was closed, no drainage being used.

The patient made a speedy recovery from the effects of the operation, and within a few days was placed upon the creosote treatment, the dose within a month being increased to ten minims three times a day.

He has steadily gained in strength and weight, and, although still suffering at times with sharp pains in the region of the cæcum, his temperature remains normal, appetite good, and general appearance very much improved.

The abdomen is not swollen, but appears normal in every respect. There is no local tenderness, there are no night sweats, there is no fever, and notwithstanding hospital confinement there is every indication of recovery. As he left the hospital in June, 1894, I have since lost observation of him.

130 Lexington Avenue.

SUCCESSFUL MECHANICAL TREATMENT OF SOME UNUSUAL AURAL CONDITIONS.*

By WILBUR B. MARPLE, M. D.,

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The writer has employed with success a mechanical device in the treatment of certain rare aural conditions to which he desires to call your attention this evening. The history of the first case briefly is as follows:

Case I.—K. D., a married woman, aged about twenty-five or thirty years, first came under the writer's care October 3, 1893. She has been troubled very much for a year or more with vertigo. For this she had been treated for some weeks by her physician, a most intelligent and competent man of large experience. Everything about her general condition had been carefully examined, every disorder which could in any way cause her vertigo had been corrected, but still the annoying symptom persisted. Inasmuch as the patient always referred the vertigo in its beginning to her right ear, she was finally sent to the writer for examination and treatment. She says that the vertigo only comes on when the head is held in a certain position—viz., when it is tipped to the right, as when she is lying on her right side at night, or when the head is tipped back and to the right. The vertigo is so severe that she often suffers from nausea, and vomited on one occasion.

She has some tinnitus on the right side. Examination reveals the following: H. D. R., watch, one foot. H. D. L., watch, fifteen feet. Relation of bone and air conduction on both sides was normal. The bone conduction was somewhat greater on the right than on the left.

The lower tone limit on both sides was not changed. A fork of thirty vibrations to the second was heard distinctly. The upper tone limit, as indicated by Galton's whistle, was also normal.

During inflation by Valsalva's method it is impossible to discover any movement of the membrana tympani. The patient does not notice any difference either in the quality or intensity of high musical tones, in changing her head from the vertical position over toward the right side, in which position she always suffers from vertigo.

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* Read before the Hospital Graduates' Club, New York, March 28, 1895.

The right membrana tympani is somewhat retracted and thickened, and in its periphery there are some calcareous deposits. Inflation by Politzer's method influences the hearing very slightly.

The patient was treated by inflations for a few days, but with no relief.

The writer congratulates himself that it was his good fortune during the treatment of the case to have the benefit of numerous useful suggestions from that most skillful aurist, his friend Dr. Edward B. Dench, to whom, moreover, he acknowledges with pleasure his indebtedness for bringing to his notice about this time an article by Dr. Clarence Blake, of Boston.* In this article, entitled Mechanical Treatment of Tension Anomalies in the Ear, Blake describes, among others, the following case, which was of such interest that brief allusion will be made to it:

A violinist noticed that when he tilted his head over to the left side, as is the custom in playing this instrument, the tones of the violin sounded dull in the left ear, and at the same time his ability to recognize the differences in quality of notes (timbre perception) was much impaired. The hearing was good, and examination revealed only an intact membrana tympani and a small, round, dry perforation of Shrapnell's membrane. Valsalvian inflation disclosed a considerable movement of the membrana tympani outward, and evidenced a relaxation of the tensor tympani, malleo-incudal capsular ligament, and the corresponding attachments. Blake regarded this ligamentous looseness as the cause of the symptoms, inasmuch as the latter only came on with the head in a certain position. To overcome this excessive ossicular mobility a most ingenious device was employed. He took a small piece of the rubber dam used by dentists (about twelve millimetres long and three millimetres broad); this he inserted in such a way into the auditory canal that the ends lay against the anterior and posterior wall of the meatus, while the central bent portion rested against the short process of the malleus. Thus a pressure from without was exercised (estimated by Blake to be equal to about fifteen milligrammes) which was in a direction favoring the most complete opposition of the malleo-incudal articulating surfaces. This pressure from without counterfeited in a measure the effect of the traction from within. With this rubber in position, the symptoms in Blake's patient (impaired timbre perception) disappeared. It was found necessary to change the shape of the rubber several times before getting the maximum effect. When just the right shape had been secured the patient wore it several weeks with ultimately permanent relief to all his symptoms. Blake's case and that treated by the writer possessed this feature in common, that certain symptoms came on with the head in a certain position. This symptom was, in Blake's case, loss of timbre perception; in the writer's, vertigo. It was determined to make use of this device, and on October 14, 1893, a small piece of rubber was introduced after the manner employed by Blake, as described above.

October 18, 1893.—Rubber still in position. If anything, the patient is better. She can now sleep on her right side, which she could not do before.

25th.—Says she still has the vertigo, but that it is much less severe. Changed the shape of the rubber slightly. Two weeks later, as a sort of *control* experiment, the rubber was removed. Two days later she returned, saying that the vertigo had been very much worse than it was when the rubber was in place. The day following its removal she had it very bad, with much nausea. She is anxious to have it reintroduced. Used Siegel's otoscope to discover whether there was any twisting movement of the handle of the malleus. When the air in the meatus was rarefied or condensed no such twisting could be detected.

November 16, 1893.—One week later she reports that she has not had a trace of vertigo since the rubber spring was replaced. The hearing distance of the right ear has gone up from one foot to twelve feet, simply as the result of some change produced by the pressure caused by the spring.

21st.—Five days later: No recurrence of the vertigo. H. D. R., fifteen feet.

December 21st.—No return of the vertigo during the past six weeks until the day before yesterday, December 19, 1895, when on rising she found that it had returned, and ever since it has been most distressing. H. D. R. watch has fallen to three feet. Examination revealed that the rubber was no longer in contact with the malleus, and when it was removed it was found to be dry and stiff and possessed no elasticity, having been in position for five or six weeks. A new piece was introduced. A week later it was readjusted, as it was not in good position. Worn for a week. The vertigo was better, but not entirely absent. Can sleep on her right side. The shape of the piece was modified several times, as it was discovered that unless it fitted nicely and pressed exactly on the short process of the malleus the effect was nil. She noticed about January 15th that the motions of the head which produced the vertigo are not so limited in character—*i. e.*, the only motion which does not produce the vertigo is a motion to the left. Her condition during January varied, though she was not entirely free from the vertigo.

March 13th.—Has been much annoyed of late. Can not get up, can not sit down, can not move in any direction without vertigo. Inserted a small paper disc against the membrana tympani in the posterior quadrant. When she returned in a few days the disc had fallen out, and, of course, her condition was unchanged. Put in another disc. A week later she returns much improved. She can move around and turn without vertigo. The disc was pushed tightly in against the membrane.

Ten days subsequently she returned, and reported that since leaving the last time she had not had a trace of vertigo, being absolutely relieved. She could move in any position, could get up suddenly, and her whole head felt better. Two days ago, after coughing rather vigorously in the evening, she seemed to feel the disc move. Since then she has not felt so well. She has had no vertigo, but her head has felt somewhat uncomfortable, and she has had one or two momentary feelings like being seasick. She has not felt badly enough to come to the city for that alone, but as she was in the city she thought best to consult the writer at his office. Examination showed that the disc was not in contact with the membrana tympani except at its periphery. It was therefore pushed back again in good contact with a cotton-tipped applicator. The patient was not seen again for a month, during which she has been entirely free from vertigo until last night, when it returned. She was very much disturbed on reaching my office. Examination again revealed that the disc was not in contact with the membrana. It was again pushed back firmly against the membrana. The patient was seen five hours later the same afternoon, and reported that her vertigo and nausea had entirely disappeared from the time the disc had been replaced. Six weeks later, June 22d, has not had a trace of vertigo or nausea since the last visit.

One month later, July 21st: Went to bed all right last night. On rising, about seven o'clock this morning, she had much vertigo and nausea. Examination revealed the disc dislodged and quite a distance from the membrana. It had not been touched for ten weeks. It was pushed back. Ten days later, July 30th, she reports that the vertigo gradually disappeared after her last visit, though not as promptly as it had done before.

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* *Archives of Otology*, xxi, No. 2, p. 166.

November 5th.—Four months later: Has not had any vertigo since the last visit. The ear feels normal in all respects. In December took out the paper disc. Early in February she wrote me that the ear seems to be entirely well. She still has tinnitus, but no vertigo. She trusts the cure will be permanent. (A similar favorable report was received this week, March 20, 1895.)

Case II.—H. H., aged twenty-four years, Wilmington, Del., seen March 29, 1894. Has noticed for three or four years that his hearing in the right ear was somewhat impaired, and also that when certain musical notes are sounded in his vicinity there is a buzzing or rattling in his ear, lasting while the note continues to sound. This is especially noticeable when his brother, who has a barytone voice, sings in his vicinity. The note E seemed to be the one which produced the symptom to the most marked degree.

H. D. R., watch, eighteen inches; H. D. L., watch, seven feet. Membrana tympani almost normal, but there are some calcareous deposits in its periphery.

The upper and lower tone limits are normal. Inflation produces little change in the hearing. Inserted rubber spring. He said that at a dinner where a gentleman made a speech in a monotonous voice there was a certain note in his voice which, when struck, would almost set him crazy, producing in his ear a sound like the buzzing of a paper over a comb. When he poured water out into a bowl it would sound as though there was water in his ear (as after sea bathing). He could also start it by leaning forward and whistling. Also he seemed able to "tire his ear into it," for in playing accompaniments for a person singing on his right side he would not be annoyed during the first three or four songs. Then it would begin, and any note or song would set his ear buzzing.

April 8, 1894.—Has tried repeatedly, since the rubber was inserted, having his brother sing in order to get the rattling in his ear. Only once, just a little bit, has he succeeded; at all other times it has failed.

Seven months later, November 22, 1894: He has not been annoyed at all of late, except once, at a performance of Rob Roy, two weeks ago. When the cornet in the orchestra struck a loud note it made his ear buzz a moment; but this was only momentary, and no other note or singing produced it. Inserted a paper disc.

Case III.—Helen G., aged nineteen years, seen April 13, 1894. Complains of exactly the same symptom—of a disagreeable buzzing feeling in her left ear when certain musical notes are struck in her vicinity. Functional examination revealed the ears normal. Inserted rubber spring. Seen one month later. Since the rubber has been in position she has not once perceived the buzzing in her left ear.

In regard to these last two cases their explanation has been given by Helmholtz in *The Mechanism of the Ossicles of the Ear.* This buzzing sound is often produced in the ear as the result of very loud tones. As is well known, the articulation of the malleus and incus is of such a peculiar coglike character that when the malleus is driven inward the incus is pushed along too by the coglike arrangement of the articulation; but when the malleus is driven outward the cogs separate, leaving the incus behind. Helmholtz considers the jarring sound in the ear when loud tones are struck to be caused by the cogs. "When the excursions of the membrana tympani are very great, and during the outward phase of the vibration, the anvil is not driven outward with any considerable force, and can not therefore follow perfectly the excursions of the hammer. The result of this is that the ossicles are separated, and that during the next vibration inward the anvil receives a blow from the returning hammer. This mechanism is also well adapted to the production of combination tones, and the peculiar sensation of buzzing in the ear resulting from the combination tones of two strong soprano voices when thirds are sung can be referred to this jarring which takes place between the hammer and anvil." When these buzzing sounds are present to an abnormal degree one could well imagine an undue looseness of the ossicular ligaments. If the cogs are widely separated, as by increasing the air pressure in the middle ear, the buzzing ceases. Also in case the ligaments are too loose the introduction of the little spring in the manner described would tighten up the articulating surfaces and put them in such close contact that the buzzing would cease, as was true in the last two cases.

Now let us consider briefly some features of the first case. Let us look at all the conditions without prejudice for or against, and see whether we are really justified in holding that the mechanical devices used had anything to do with the disappearance of the vertigo.

That the latter was of aural origin was always suspected by the patient herself, who referred its inception invariably to the right ear. Always during the persistence of the vertigo her right ear felt "stuffy," and the tinnitus was worse. Again, the hearing in that ear for the watch was at first only one foot, while in the left it was fifteen feet. Inflation did not improve the hearing in her right ear. But after the rubber spring had been introduced so as to fit, examination showed that the hearing distance for the watch had increased on that side to twelve feet.

That the symptom was some tension anomaly, probably due to some ligamentous laxness, was suggested by the fact that the vertigo was always brought on by tipping the head to the right side, or back and to the right. In the commencement of the treatment the writer was extremely skeptical as to the influence of the devices used in relieving the symptom. There had previously been times during which she had been free from her trouble, so that one naturally would at first consider that the disappearance of the vertigo after employing the device was simply a coincidence—merely a case of "post" but not of "propter." Yet this "coincidence" became such a very frequent occurrence that one was no longer justified in regarding it as merely a "coincidence." Let us recall a few only of these. The patient comes in; the rubber has been in position about three weeks, and her vertigo has been much less. As a "control" experiment rubber was removed. Two days later she returned, saying that the vertigo had been very much worse the past two days. She has had nausea, and is anxious to have the rubber reintroduced, which was done, and at her next visit, a week later, she reported that she had not had a trace of vertigo since the prop was replaced.

Again, after the use of the paper disc was begun she had gone for two weeks with perfect comfort; could put the head in any position without bringing on her old trouble. After coughing violently she felt the paper disc in her ear move, and at once her vertigo returned, and with this there was an uncomfortable, stuffy feeling in the ear. On examination, the disc was found tilted away from the drum membrane, having been dislodged very probably at the time she coughed. With a cotton-tipped applicator the disc was pressed firmly back in position. She was requested to return the same afternoon, which she did. Her vertigo had entirely disappeared, and she was not seen again for a month.

Such experiences as these became so frequent that the writer's skepticism vanished, and he was convinced that the pressure exerted by the rubber, and eventually by the paper disc, was the ætiological factor at work in relieving his patient.

As to *how* it did this one can only speculate, in the absence of more exact knowledge in regard to the phenomena of vertigo. Dizziness as the result of rotation has been studied by several observers in normal men and in deaf-mutes, but a comparison of symptoms, with pathological changes in the internal ear, has been made in extremely few cases. Dr. Frederick S. Lee, of this city, who has himself made elaborate investigation as to the function of the semicircular canals in fishes, kindly gave the writer the benefit of his experience. It was his opinion that, reasoning from his observations in fishes, one could locate with probability the lesion, if it was in the semicircular canals, by the direction in which the patient seemed to be falling during the attack of vertigo. The fact that in the writer's case "the motion was circular, everything seemed to go around," would seem to indicate that no one semicircular canal alone was disturbed, but all, or possibly, as Dr. Lee suggests, "the otolithic parts." Also, this disturbance in the labyrinthine pressure might be produced by a minute movement of the ossicular chain attending a tilting of the head if the articular ligaments were loose. In considering certain aural conditions, one is oftentimes impressed by the conspicuous character of the symptoms which are produced by exceedingly minute changes in the parts. For example, Helmholtz has shown that the excursions of the *stapes* in the fainter (though yet clearly to be distinguished) tones must be so small as to escape detection even with the highest powers of our modern microscopes. A similarly minute movement could well be sufficient to bring about pressure changes in the labyrinth capable of causing the vertigo.

In conclusion, there are one or two points in regard to the technique to which it may not be amiss to allude. The little piece of rubber is seized by its two ends with the angular ear forceps; the convex-bent middle is smeared with a little vaseline; it is then inserted through the speculum until it is in contact with the short process of the malleus. The rubber is then released, one end falling against the anterior, the other end against the posterior, wall of the meatus. It is now carefully examined to see whether it is in accurate contact with the short process. To be sure of this, it is well to push it back lightly with a cotton-tipped applicator. The soft rubber produces no irritation, and the patient is not conscious of the presence of anything unusual in the ear. It is sometimes extremely difficult to remove the rubber, as it clings either to the membrana tympani or to the wall of the meatus. To facilitate the removal, the writer passed a fine silk thread through the layers of the rubber about its middle, but tied no knot in the silk. The end of the silk thread was cut long enough, so that when the rubber was in position the thread lay in the meatus, and could easily be seized with the forceps and thus the rubber pulled out. Once only was any irritation produced, and that was when he tied a knot in the silk, and this knot, when the rubber was in position, pressed upon the membrana tympani, producing pain and redness, so that the device had to be removed. He then passed the silk through the layers of the rubber and tied no knot in it, and no further irritation was produced.

The paper disc can be inserted by smearing the end of a cotton-tipped applicator with a little vaseline, pressing it on the disc, which thus adheres to the applicator and can be pushed into position. When it is in contact with the membrana tympani it remains adherent there on withdrawing the applicator. When it is desired to remove the disc it can be syringed out with warm water, or a short piece of fine silk thread can be attached to the middle of the disc by a bit of wax. This thread can then be seized by the forceps when the disc is in position, and thus the latter can be readily removed.

As Blake says: "The treatment must be long continued to get any permanent result in a condition which has become essentially chronic by the time it is brought to the attention of the surgeon.

"Still further, it should be said that the adjustment of such mechanical appliances must always be a matter of more or less experiment, since the questions of the weight and position of, and the degree of pressure exercised by, the dressing are variable factors, which must be apportioned to the individual needs of the case under consideration.

"The fact, therefore, that the application does not give immediate relief by no means justifies the conclusion that it can not be of service, since the effect may follow later, or may be more immediately brought about by slight change in adjustment."

No. 20 West Thirty-first Street.

REPORT OF A CASE OF WRITER'S CRAMP TREATED BY STATIC ELECTRICITY.

By S. H. MONELL, M. D.,
BROOKLYN.

March 29, 1895.—Miss ——, telegrapher, aged twenty-five years. She has been telegraphing for five years. Her right hand has been failing for two years and is now practically useless; the left hand is also nearly useless. She can only clumsily push the key. She keeps at work, but must soon give up if she is not relieved. She has tried various mechanical devices, and has had some medical treatment without benefit. Her wrist is powerless, there is some distress and pain in the arm, and the thumb twists off the key. The patient is anæmic and neurasthenic, but has never lost a day on account of sickness, and she considers her general health fair.

Upon careful inquiry, and finding that her right arm had failed so early in her work when it had been easy to do, I concluded that the lapse of time (two years) and the nature of her case rendered the prospect of relief discouraging. I therefore frankly informed her that I could feel no hope of doing her much good, but that I would treat her for a short time, and, if she derived any benefit, well and good, and if not, then I would cease treatment. She was somewhat disheartened but acquiesced.

A five-minute application of static electricity was made to her right arm simply as a test of the muscular condition, but, after making her use the key (a telegrapher's instrument which I keep for the purpose), I observed an evident increase in the facility of her fingering.

March 30th.—She reports that her arm felt more comfortable all night and was nearly free from the usual sense of distress. Duration of treatment to-day, thirteen minutes. The arm felt better after the application. I advised very mild exercise for both arms and placed her upon appropriate treatment for her anæmia.

April 1st.—The patient having rested for a day, her arm felt benefited, and she said that the operator at the desk next to hers had told her on Saturday that she "sent better." Duration of treatment to-day, fifteen minutes.

April 2d.—The patient reports that she "sent" fairly yesterday after her day's rest and treatment, but about 5 P. M. her arm got very heavy and felt poorly. Her working hours are from 10 A. M. to 6.30 P. M. The day was rainy, and on such days her arm usually felt worse.

April 3d.—She reports a steady improvement. She was able to use her arm all the morning. Her wrist is regaining power. Other operators tell her they notice that she "sends" a great deal better than formerly.

Increased strength of application to-day, but was careful to avoid all fatigue in treatment.

April 4th.—The patient reports that she "got all through her work yesterday without a bit of trouble by using her fingers easily and slowly." It is fully two years since her arm acted so well. The general muscular condition of her arm has improved and the pains have almost ceased.

April 5th.—The gain continues; a steady, small advance each day. The arm did better yesterday than it has done any day so far. In view of her two years' experience with other treatment, she states that the gain to her seems "wonderful."

April 6th.—The arm felt better yesterday, although she had a hard day's work. About 5.30 P. M. the upper arm (biceps) began to feel lame. In the evening, however, it became rested and felt natural, there being no more of the former distress and aching sensations. She stated that had she not been so greatly benefited by the treatment she could not have done such a day's work, but would have had to go to the superintendent and ask to be transferred to other duties.

April 7th.—She had another busy day on Saturday and the arm did well, but it got tired toward the close of the day. The patient timed herself on one message of seventy-two words which she sent in two minutes. As her work is mostly cipher work, requiring special care in sending, she considered her speed excellent. To-day (Sunday) she is able to rest.

April 8th.—Repeated treatment as usual—about fifteen-minute applications. Her Sunday's rest was very grateful to her arm.

April 9th.—The patient had a very hard day's work yesterday, equal to a good day's work for any ordinary operator in perfect health. About 4 P. M. her arm got tired and she was obliged to take her thumb off the key and use her fingers only. No pains recurred, and no distress followed at the close of the day. She became annoyed at having so much work put upon her when she needed relief in order to benefit by the treatment, but to her protest the manager replied, "Oh! you seem to be doing well enough."

April 10th.—She had only a moderate amount of work yesterday and got through it easily. She again stated her need for temporary rest and was promised a few days' partial relief after to-day. She felt that her arm was overtaxed by the heavy work of the 8th inst., and that the thumb and fingers felt the strain. She has recovered the lost ground, however.

April 11th.—The patient was transferred to other work according to promise, except at the noon hour, when she had to take her place at the key. She felt the benefit of the rest at once and had so natural a feeling in her arm that she "rather enjoyed the sending she did at noon."

April 12th.—The patient states that her arm feels "splendid."

April 13th.—Rained to-day, consequently her arm feels slightly heavy. As circumstances prevent her from continuing the treatment, she states that a careful estimate of her arm now is that it is not equal to her early and best work, but it is fully equal to its condition nearly two years ago. The thumb and the fingers stay on the key perfectly and are as flexible as ever. The power and endurance of the whole arm are below par, although wonderfully improved.

May 8th.—Upon resuming work after stopping the treatment, her arm lost some of the gain, but soon ceased to lose and was steadily doing well; the result was very satisfactory. It is now twenty-five days since the last treatment, and she is using her arm with a very fair degree of comfort.

The points of interest about this case are that she had only fifteen electrical applications; that she was obliged to pursue her vocation during the treatment until the last three days; that her gain was even and continuous, and that the wrist, which was powerless, recovered on a par with the average strength of the entire arm. The duration of the sittings was about fifteen minutes, which was increased to twenty minutes toward the last. It was her belief and my own that another week of this treatment *with rest* would have completed a radical cure.

233 Macon Street.

REPORT OF
A CASE OF AMBLYOPIA EX ABUSU.
RECOVERY WITH UNUSUALLY GOOD VISION.

By VINCENT GOMEZ, M. D.,
BROOKLYN.

A. P., aged twenty-five years, single, a native of Germany, by occupation a bartender, was first seen on December 26, 1894, giving the following history:

Ever since he can remember has never seen much with the left eye; had a convergent strabismus in this eye up to three or four years ago, which was operated upon. For the last three or four weeks his sight has gradually been failing, but he can not possibly state when it began. He says he sees much better at night and in a dimly lighted room. In a bright light and in the daytime he has a troublesome cloud which dazzles his sight. He is a heavy consumer of tobacco and of lager beer, taking of the latter eight or ten glasses daily, and smoking seven or eight cigars through the day. How long he has indulged in this he can not say positively, but states that he has done so for a long time. Up to three weeks ago his vision in the right eye was perfect, and his eyes did not bother him in the least.

The left eye seems somewhat smaller than the right; the pupil is dilated and reacts slowly; fixes poorly; vision in the left eye equals fingers at six inches, with no improvement. The field in this eye is very greatly contracted for all colors.

Examination with the ophthalmoscope: Media clear. Disc bluish white, the outline sharply defined and somewhat pigmented. The blood-vessels are small, especially the arteries. The field in the right eye showed a central scotoma for red. Vision in this eye $= \frac{20}{70}$, with no improvement.

Objective examination shows but slight ophthalmoscopic changes. The papilla is somewhat hyperæmic, but not so decidedly at the temporal half; there is a moderately marked physiological cup; but these changes are so slightly pronounced that one may say that the result of examination is negative. A diagnosis was made of amblyopia ex abusu in the right eye, and atrophy of the optic nerve in the left.

The treatment consisted first of all in abstinence from tobacco and alcoholic beverages, and the exhibition of strychnine sulphate, gr. $\frac{1}{30}$, four times daily. On January 2, 1895, I again saw the patient. V. O. D. $= \frac{18}{200}$; the hyperæmia of the disc was more marked. Ordered strychnine sulphate, gr. $\frac{1}{30}$, eight times daily. On January 4th, V. O. D. $= \frac{20}{50}$. January 11th, V. O. D. $= \frac{20}{50} +$. January 18th, V. O. D. $= \frac{20}{30} +$; does not feel any rigidity of muscles or jaw; is still taking a fifth of a grain of strychnine daily. February 4th, V. O. D. $= \frac{20}{40}$. March 1st $= \frac{20}{50}$; has not been taking strychnine with any regularity. Ophthalmoscopic picture about the same. March 8th, V. O. D. $= \frac{20}{30}$. March 15th, V. O. D. $= \frac{20}{20} -$. March 8th, V. O. D. $= \frac{20}{15}$; reduced amount of strychnine to a thirtieth of a grain, six times daily. April 1st, V. O. D. $= \frac{20}{15}$. April 8th, V. O. D. $= \frac{20}{15}$; reduced strychnine to a thirtieth of a grain, four times daily. Reads Jaeger No. 2 at six inches, a thing he has not accomplished in five months. April 15th, V. O. D. $= \frac{20}{15}$; reduced strychnine to a thirtieth of a grain, three times daily. April 21st, V. O. D. $= \frac{20}{15} +$. Jaeger No. 1 at five inches. April 26th, V. O. D. $= \frac{20}{15} +$; discontinued the use of strychnine. April 29th, V. O. D. $= \frac{20}{15} +$. May 14th, V. O. D. $= \frac{20}{15} +$; feels well. The light does not seem to dazzle his sight. Ophthalmoscopic examination reveals a normal fundus.

Amblyopia from the abuse of alcohol or tobacco has been recognized clinically for quite a long time, but not until recently understood accurately.

Uhthoff examined 1,000 patients who were addicted to alcoholic excess (alcoholism), and out of these found six per cent. affected with amblyopia; in 6·5 per cent. he found the peculiar nerve lesion without amblyopia, and in 5·3 per cent. pathological conditions of the optic nerve and the adjacent retina. Added to these were some other lesions affecting the pupils, the muscles, and the retina, making a total of eye diseases among 1,000 patients of about 30 per cent. How long the indulgence had continued is not stated. The ophthalmoscopic finding was that in 63 per cent. there was atrophic pallor of the temporal side of the nerve, often extending below, and this lesion occurred in all the protracted cases; in 8 per cent. there was slight but distinct haziness of the nerve and the adjacent retina; in 28 per cent. there was no abnormal appearance.

The pathological lesion is atrophy succeeding to inflammation of the axial fibres of the nerve. The beginning may be at any part below the chiasm, although by preference it affects the distal or ocular portion of the nerve. With deep lesions some time is required for their manifestation at the disc; hence, in many cases, no visible sign is afforded. The symptoms are color scotoma or absolute scotoma varying in size and usually central. There may be no reduction of acuity on examination by test types, or vision may be extremely bad. The periphery is not affected. Very frequently there is a glimmering sensation; pain is not present, either spontaneously or on pressure. Commonly both eyes are symmetrically affected—a fact which distinguishes this from other intraocular affections, such as chorioiditis, atrophy of the optic nerve, cataract, etc., in which the two eyes are usually affected to a different degree.

The blindness relates to both red and green, and in very rare cases to blue, just at the centre. The progress of the disease is slow, and total blindness is not common, but recovery with normal vision does not frequently occur.

No. 390 Fourth Street.

A CASE OF REMOVAL OF

THE MIDDLE LOBE OF THE PROSTATE

IN A MAN OF SEVENTY-SIX.

By EDWIN M. COX, M.D.

The case here described is not reported because of any rarity in the pathological condition or of anything out of the ordinary in the operative treatment, but on account of the great age of the patient and his good recovery.

In a hasty survey of the reported cases I have been unable to find a successful one when the patient was so old.

This patient, whom I saw with Dr. Thomas Darlington, of Kingsbridge, was a man of seventy-six, who had previously had good general health. When I saw him he had been suffering from retention of urine for over twenty-four hours, not having called a physician for some time after the onset of his symptoms, and the cause of this retention I found to be an enlarged prostate, with the enlargement, as I decided, practically confined to the middle lobe, for a rectal examination showed that the rest of the organ was only very slightly increased in size. The bladder was distended so as to reach to within an inch and a half of the umbilicus, and as the patient was thin it formed an exceedingly prominent tumor. He was, of course, in great distress. This was his first serious difficulty, and he denied all forms of venereal disease. He had no signs of a urethral stricture.

It was entirely impossible to pass any instrument into the bladder through the urethra, and as I was not prepared to operate at the time, as it was late at night and the proper instruments were not at hand, I aspirated the bladder above the symphysis and withdrew nearly two pints and a half of dark, turbid, ammoniacal urine.

Next morning I performed a rapid external urethrotomy for drainage, with a view to getting the patient and his bladder into better condition for some further operative interference, which, in view of the condition which I felt sure to be present, I thought necessary, if any permanent good result was to be expected. The perineal tube was left in place for several days and it drained well, though the deposit of phosphates in it gave a little trouble. The quality of the urine became very much better, and the patient's general condition improved.

In about a week, as the patient's condition seemed to warrant it, I did a suprapubic cystotomy in the usual way, using the longitudinal incision, as I wished to spare the patient as much loss of blood as possible. No rectal bag was used, but the pelvis was elevated, and no trouble was experienced in avoiding the peritonæum. The bladder wall was thicker than was to be expected, considering the distention to which it had been subjected, and was somewhat more friable than it should have been. I found the condition to be one of typical middle-lobe hypertrophy. That portion of the prostate formed a hemispherical mass about an inch in diameter, and was the evident cause of the trouble. It was soft, and evidently very vascular. The mucous membrane of the bladder was in good condition, and there was no sacculation in the walls of that organ. The offending middle lobe was not pedunculated enough to treat by ligature or écraseur, and I considered it to be too dangerous to attempt excision with the knife, so I destroyed with the Paquelin cautery what I thought to be enough to remove the obstruction, and packed with gauze down to the cauterized surface This controlled the hæmorrhage, which had been moderate. A suprapubic drainage-tube was introduced in addition to the packing, the perineal tube removed, and the wound in that region treated also by packing. The patient did well continuously; his temperature did not reach 101° at any time, and the wounds were treated as is usual after a suprapubic cystotomy by frequent dressings. Sounds of good size were introduced into the bladder through the urethra at regular intervals after the operation, and they entered easily. The patient's recovery was slow but steady, and now, almost a year after the operation, I am able to report him well, for such is the last word from him received about a month ago.

In view of the recent developments in the treatment of similar cases by the removal of one or both testes, apparently with such good results, and balancing against them the immediate and remote possible disadvantages of the suprapubic operation, I think that in another such case I should prefer the operation of castration to that of the radical one on the prostate. Some cases of suprapubic cystotomy *do* have a more or less permanently persistent fistula, and this is a very disagreeable sequela, to say the least. Furthermore, it seems to me that, granting the efficacy of the operation of castration, very few patients would weigh the disadvantages of the anorchid condition against the advantages of normal micturition and a healthy bladder, of course taking into consideration the age at which enlargement of the prostate occurs.

45 West Thirty-ninth Street.

The Onondaga Medical Society.—The annual meeting will be held in Syracuse, N. Y., on May 14th, under the presidency of Dr. J. H. Coe. The programme includes the following titles: Drinking Water in Rural Districts, by Dr. O. G. Dibble; The Necessity for Early Recognition of Cancer of the Womb, by Dr. A. B. Miller; Prophylaxis by Sanitation, by Dr. B. F. Chase; Favus, by Dr. W. H. Dunlap; The Predisposition of Children to Lung Complications after Pertussis, Scarlet Fever, or Measles, by Dr. Frank McMarrow; and the President's Address, by Dr. J. H. Coe.

The Niagara Falls, N. Y., Academy of Medicine, recently organized, has elected officers as follows: President, Dr. G. C. Clarke; Vice-president, Dr. O. E. McCarty; secretary, Dr. F. R. McBrien; treasurer, Dr. W. R. Campbell; trustees, Dr. Talbot, Dr. Van Pelt, and Dr. Clarke.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

Published by
D. Appleton & Co.

Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, JUNE 1, 1895.

A MODERATE VIEW OF THE ANTITOXINE TREATMENT OF DIPHTHERIA.

In the *Journal de clinique et de thérapeutique infantiles* for May 16th there is an article by a well-known physician of the *Hôpital Trousseau*, Dr. G. Variot, in which he says that, according to his observation, while the antitoxine treatment gives brilliant results in ordinary cases of pharyngeal diphtheria, and especially in cases in which laryngeal stenosis is the main source of danger, it fails constantly in what he calls toxic cases, those in which death is due to general poisoning, the chief effect of the poison falling upon the heart and the peripheral vessels, with a great reduction of the amount of urine excreted or its total suppression. But he reflects that the experience which had led him to this conclusion had been in hospital practice, and that children affected with this form of diphtheria are seldom or never sent into a hospital early in its course and do not usually receive the antitoxine treatment at their homes. Even this saving reflection, however, has been upset by his having recently seen the treatment fail in a case in which he was able to employ it from the outset of the disease. He gives the history of this case and of fifteen other fatal cases.

Save in a few exceptional instances, says M. Variot, where death takes place with lightning rapidity, the powerful action of the serum in the way of opposing membranous exudation suffices to relieve the throat. The glandular swelling and the infiltration of the neck are reduced, the general condition is ameliorated for the time being, and the child takes food and regains its vivacity. But this is a deceptive remission; at the end of two or three days the face becomes pale, general prostration supervenes, and the pulse intermits and then is altogether imperceptible. This pulselessness often persists for two or three days before death occurs, although the heart, of course, keeps on beating to the last. The limbs are cold, but not cyanotic, and M. Variot says that certain features of the child's condition remind one of the algid phase of Asiatic cholera.

Nevertheless, he says in conclusion, we should not be discouraged or underrate the immense value of the antitoxine treatment. If it is useless in these toxic cases, even when employed from the start, it yet has the precious property of causing the false membranes to disappear even in the gravest cases; the enormous reduction of the mortality from croup is incontestably due to the rapid casting off of the exudate caused by the serum. The phenomena of laryngeal obstruction do not persist after the injections; the action of steam generally suffices to relieve the remnants of them, temporary intubation, for two or three days, wards off suffocation in the few cases that call for it, and tracheotomy, at least in hospital practice, is destined to grow rarer and rarer.

Finally, M. Variot questions the antitoxic action of the serum. If, he says, it were really antitoxic, it would be strange that its antitoxic action should cease to be manifest in the very cases where it was most necessary. It certainly counteracts the formation of false membranes, but its antitoxic power is extremely doubtful, at least when the disease is actually developed. Not only does it fail to prevent death in the toxic forms properly so called, but it does not avert the partial paralyses of convalescence, which are themselves only mitigated toxic manifestations.

MINOR PARAGRAPHS.

AN UNLICENSED PRACTITIONER IN YONKERS.

A MAN named Waring, who has at various times and in different places been in trouble as the result of dishonest and criminal practices, and once served a term of imprisonment for practising without registration, has been incarcerated in Yonkers. The prosecutor was Dr. E. M. Morrell, of Yonkers, and the community of that city owe Dr. Morrell a debt of gratitude for ridding them, for the time being at least, of a very dangerous person. It seems that Waring has twice been on trial for manslaughter, and escaped conviction only by lack of convincing evidence, and that his career of infamy includes the personation of a benefactor whose diploma he had stolen. Dr. Morrell feels confident that when the man's present sentence expires he can prove charges against him sufficient to send him to Sing Sing for a term of years.

M. PASTEUR AND FRANCO-PRUSSIAN ANTIPATHY.

IT is to be hoped that a statement lately made in one of the French newspapers, the *Figaro*, will turn out to have been unfounded. It is to the effect that the German Emperor, having taken means to ascertain whether the great French chemist would accept a decoration from the German government, received the reply that he could not, for he could not forget 1870 Surely such resentment is unworthy of M. Pasteur, and therefore we question the accuracy of the statement.

THE AMERICAN SURGICAL ASSOCIATION.

THIS year's meeting, in New York, now drawing to a close as we go to press, has been exceedingly profitable and satisfactory. The president, Dr. Dennis, loyally assisted by the other surgeons of New York, has been able to supplement the reading of papers and the discussions by a very thorough exposition of the details of hospital surgery as practised here and by social entertainments that seem to have been very acceptable to the members from other parts of the country.

JUSTICE TO A NEW YORK SURGEON.

IN a recent number of the *Progrès médical* there is a report of a meeting of the *Société de chirurgie* whereat there was reported a case of removal of a calculus from the ductus choledochus communis. The tenor of the report is such as to lead the editor of the *Progrès* to append a foot-note intimating that it does not seem to be known to the members of the society who was the first to remove such a calculus from the living subject, and informing them that it was Dr. McBurney, of New York.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending May 28, 1895:

DISEASES.	Week ending May 21.		Week ending May 28.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	10	2	9	2
Scarlet fever	77	7	103	13
Cerebro-spinal meningitis	1	1	2	2
Measles	251	21	283	30
Diphtheria	250	33	198	49
Small-pox	0	0	0	0
Tuberculosis	118	122	115	97

The Mississippi Valley Medical Association.—The twenty-first annual meeting will be held in Detroit on September 3d, 4th, 5th, and 6th. The chairman of the committee of arrangements, Dr. H. O. Walker, of Detroit, thinks there is the prospect of a large attendance. It is probable that arrangements similar to those of last year will be effected in the matter of railroad rates—namely, one fare for the round trip. Dr. William Pepper, of Philadelphia, is to deliver the annual address in medicine.

Changes of Address.—Dr. Samuel M. Brickner, to No. 109 West Eighty-second Street, New York; Dr. W. Gilman Thompson, to No. 34 East Thirty-first Street, New York.

Society Meetings for the Coming Week:

MONDAY, *June 3d:* New Hampshire Medical Society (first day—Concord); New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; New York Medico-surgical Society; Morrisania Medical Society, New York (private); Brooklyn Anatomical and Surgical Society (private); Niagara Falls, N. Y., Academy of Medicine; Corning, N. Y., Academy of Medicine; Utica, N. Y., Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

TUESDAY, *June 4th:* Indian Territory Medical Association (first day—South McAlester); New Hampshire Medical Society (second day); New York Neurological Society; Buffalo Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Societies of the Counties of Columbia (semi-annual—Chatham), Franklin (semi-annual), Herkimer (quarterly—Herkimer), Niagara (annual—Lockport), Saratoga (annual), and Yates (annual), N. Y.; Hudson and Warren (annual), N. J., County Medical Societies; Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine; Medical Society of the University of Maryland (Baltimore).

WEDNESDAY, *June 5th:* Ontario Medical Association (first day—Toronto); Maine Medical Association (first day—Portland); State Medical Society of Wisconsin (first day—West Superior); Indian Territory Medical Association (second day); New York Academy of Medicine (Section in Public Health); Society of Alumni of Bellevue Hospital, New York; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, *June 6th:* Rhode Island Medical Society (Providence); Ontario Medical Association (second day); Maine Medical Association (second day); State Medical Society of Wisconsin (second day); New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua, N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington); Cuyahoga, O., County Medical Society.

FRIDAY, *June 7th:* Maine Medical Association (third day); State Medical Society of Wisconsin (third day); Baltimore Clinical Society.

SATURDAY, *June 8th:* Obstetrical Society of Boston (private).

Births, Marriages, and Deaths.

Died.

HAWKES.—In New York, on Saturday, May 25th, Dr. John Marshall Hawkes.

LAW.—In Brooklyn, on Saturday, May 25th, Dr. George E. Law, aged thirty-four years.

Book Notices.

Surgical Pathology and Therapeutics. By JOHN COLLINS WARREN, M. D., Professor of Surgery in Harvard College, etc. Illustrated. Philadelphia: W. B. Saunders, 1895. Pp. 7 to 832. [Price, $6.]

"No young practitioner can be regarded as thoroughly equipped for surgical work who is not both a good pathologist and an expert bacteriologist. The confidence born of a knowledge of pathology and bacteriology enables him to assume grave responsibilities and grapple successfully with the most complicated problems. It is from men thus equipped that we have a right to hope that the future masters of surgery are to be evolved."

These words, taken from the preface to Dr. Warren's book, happily express what every modern surgeon feels with regard to the importance of a knowledge of pathology and bacteriology in surgical practice.

The progress of surgical pathology has been so rapid in the past few years that books of a decade since give us no idea whatever of the modern views, and bacteriology has so modified our handling of diseases that only those who are familiar with the latest literature and practices can be said to do full justice to their patients. Since Billroth's *Surgical Pathology*, no book has appeared to take the place in relation to modern surgery which it held in its day, until the present volume. Works upon pathology and bacteriology are numerous, but they are written for the laboratory. The present volume is for the bedside, the amphitheatre, and the ward. It deals with things not as we see them through the microscope alone, but as the practitioner sees their effects in his patients; not only as they appear in and affect culture media, but also as they influence the human body; and, following up these demonstrations of the nature of diseases, the author points out the logical treatment of them. This is indeed the practical end, the only end worth striving for, to cure the ills that flesh is heir to, or circumscribe and prevent their progress.

The book begins with a *résumé* of bacteriology in general, but soon enters upon the special field of surgical bacteria. In this chapter the different organisms which cause or influence surgical diseases are clearly and succinctly described. These bacterial forms are not numerous, and it will require no great outlay of time for the surgeon to familiarize himself with them and the means of finding them. They are all illustrated in this chapter by colored plates which show the proper staining for their best examination. These plates are works of art, and the publishers are to be congratulated upon their production.

The distinctions between simple and infective inflammation are well brought out. Under the latter heading the chapter on acute osteomyelitis is one of the most opportune in the book. The importance of early recognition and radical interference can not be too strongly urged, and the practical points thrown out by the author with regard to detecting the situation and removing the original focus of the disease are well worth remembering.

While points for criticism may be found in the book, and differences of opinion, especially with regard to therapeutics, will arise as we read it, the author is so logical and so ready with a reason for the faith that is in him that we are often convinced against our own experience. The chapter on aseptic and antiseptic surgery is interesting historically as well as suggestive. One reared in the modern school and hospital can hardly imagine the horrible condition of the French hospitals here described, but quotations from their own surgeons prove it to exist.

The last chapter, or appendix, is devoted to serum therapy. The author has had little experience with it, and neither indorses nor condemns it. As to diphtheria antitoxine, he has nothing whatever to say, preferring, no doubt, like many others, to await the sober judgment of larger experience.

The appearance of this work is timely. The profession were in need of such a book, and we are proud that it has come from one of our own countrymen. It should be in the hands of every surgeon and in the curriculum of every medical college.

Diseases of the Ear. A Text-book for Practitioners and Students of Medicine. By EDWARD BRADFORD DENCH, Ph. B., M. D., Professor of Diseases of the Ear in the Bellevue Hospital Medical College, etc. With Eight Colored Plates and One Hundred and Fifty-two Illustrations in the Text. New York: D. Appleton and Company, 1894. Pp. xxii–645. [Price, $5.]

TEN years since it was almost a daily occurrence for the traveler in our metropolitan street cars to find himself sitting next to a sufferer from the so-called "fœtid running ear," and a more disagreeable seat can hardly be imagined. To day we rarely see one. If otology had done nothing else but relieve the sufferers and society of this loathsome affection, it would have deserved our lasting praise and gratitude. The present work, however, compared with those of earlier dates upon this subject, shows what a marked advance this specialty has made. The application of science and mechanics to the examination and treatment of diseases of the ear is second only to their use in those of the eye, and the modern operations in the middle ear require a delicacy and precision equal to, if not exceeding, those of the oculists. While describing in sufficient detail these difficult procedures and scientific application of mechanics to the ear, the author has sought to present the subject to the student and general practitioner rather than the specialist, that they, seeing these cases in their early stages, may by proper attention prevent the later and more obstinate diseases of the ear. It is a book, then, for the whole profession, and no one will be disappointed who reads it.

To review the chapters *seriatim* would be a pleasure, but of little profit to our readers.

The sections upon examination, especially that upon the functional examination of the ear, are replete with modern and practical suggestions. The minuteness and care with which these manipulations are detailed might appear somewhat prolix to the specialist who already understands them, but to the reader, who must learn them from the books or not at all, they will be of great assistance.

The author's warning against ordering patients to instil a few drops of an alkaline solution into the ear in order to soften impacted cerumen is timely and wise, no doubt, but he will have difficulty in persuading the general practitioner who has syringed in vain for half an hour, then ordered borax and olive oil instilled for twenty-four hours and at the end of this time removed the impacted mass without pain by one or two syringefuls of warm water, that the practice is pernicious. Cleaning the ear out at one sitting and thoroughly examining it is undoubtedly the scientific and rational method, but the instruments and skill requisite for this are often wanting, and the old plan is not likely to do so much harm as harsh and awkward handling of a tender ear.

The author is an advocate of operations upon the middle ear—tenotomy, osteotomy, stapedectomy, curetting, etc.—and certainly with his skill and experience he is justified in undertaking them. They are operations, however, for the expert specialist, dangerous even at his hands, and should not be undertaken by the ordinary operator, however simply and clearly the author describes them.

The relationship between affections of the ear and general diseases forms an important chapter, especially to the family physician. Pathology and pathological theories form a very small portion of the book, though they are not slighted. The work is a thorough practical review of the subject, and will take a high place in the literature upon this subject.

The mechanical and artistic features of the book are worthy of special mention, for both author and publisher may feel justly proud of their production.

The International Medical Annual and Practitioner's Index. A Work of Reference for Medical Practitioners. By Various Contributors. Thirteenth Year. New York: E. B. Treat, 1895. Pp. 648. [Price, $2.75.]

The International Medical Annual is the American edition of the *Medical Annual*, and of the latter there has so recently appeared a review in this journal that it remains but to point out the identity of the two books and to repeat that "it is one of the most useful books with which we are acquainted."

The Year Book of Treatment for 1895. A Critical Review for Practitioners of Medicine and Surgery. By Various Contributors. Philadelphia: Lea Brothers, 1895. Pp. viii–490.

This is the eleventh issue of the *Year Book of Treatment.* It is also the best, not because the others have not been good, but because the publication each year approaches a little nearer perfection. Several editorial changes have been made in this issue, Dr. Coupland having assumed charge of the section on Diseases of the Heart and Circulation, Mr. William Rose taking the section on General Surgery, and Dr. Whitelegge that on Public Health and Hygiene. The section on Bacteriology has been omitted. The object of this book has been kept clearly in view by the editor and contributors, and in its well-selected matter, in its excellent arrangement and classification, in its several indices, and in its conveniently small size the book can not but be useful to "the busy practitioner who wishes, with a minimum of trouble, to keep himself abreast of progress in all that relates to the treatment of disease."

BOOKS, ETC., RECEIVED.

Notebook of Materia Medica, Pharmacology, and Therapeutics. By R. E. Scoresby-Jackson, M. D., F. R. S. E. Fifth Edition. Revised by J. Rutherford Hill, Pharmaceutical Chemist, etc., and Ralph Stockman, M. D., F. R. C. P. E., Lecturer of Materia Medica, School of Medicine, Edinburgh. Edinburgh: James Thin; London: Simpkin, Marshall, & Co., 1895. Pp. cxviii–743.

The Extra Pharmacopœia. By William Martindale, F. C. S., Late Examiner of the Pharmaceutical Society, etc. Medical References and a Therapeutic Index of Diseases and Symptoms. By W. Wynn Westcott, M. B. Lond., Coroner for Northeast London. Eighth Edition. London: H. K. Lewis, 1895. Pp. xxviii–584.

On the Relation of Diseases of the Spinal Cord to the Distribution and Lesions of the Spinal Blood-vessels. By R. T. Williamson, M. D. Lond., M. R. C. P., Medical Registrar, Royal Infirmary. London: H. K. Lewis, 1895. Pp. 5 to 41.

A New Method of Inhalation for the Treatment of Diseases of the Lungs. By W. H. Spencer, M. A., M. D. Cantab., M. R. C. P. Lond., Consulting Physician to the Bristol Royal Infirmary. London: The Scientific Press, Limited, 1895. Pp. 3 to 54.

Third Annual Report of the Board of Health for the Year ending September 30, 1894, Washington.

Information Relative to the Investigation of the Influence of Climate on Health. Circular No. 4. Sanitary Climatology.

The Prevention and Treatment of Ophthalmia Neonatorum, and the Necessity for more Efficient Legislation to Prevent Blindness from this Cause. By Charles H. May, M. D. [Reprinted from the *Medical Record.*]

Syphilis and Alcoholism of the Brain, Spinal Cord, and probably of the Nerves of the Legs. By J. T. Eskridge, M. D., Denver. [Reprinted from the *Medical News.*]

A Universal Language for Medical Men. By J. Keser, M. D., London. [Reprinted from the *Medical Magazine.*]

Some Impressions of Gynæcology in Europe. By Hunter Robb, M. D. [Reprinted from the *Western Reserve Medical Journal.*]

A Text-book of Physiology. By M. Foster, M. A., M. D., LL. D., F. R. S., Professor of Physiology in the University of Cambridge, etc. Revised and abridged from the Author's Text-book of Physiology in Five Volumes. New York and London: Macmillan & Co., 1895. Pp. xlviii–1183. [Price, $5.]

Immunity, Protective Inoculations in Infectious Diseases, and Serum-therapy. By George M. Sternberg, M. D., LL. D., Surgeon-General, United States Army, etc. New York: William Wood & Co., 1895. Pp. vi–3 to 325.

A Guide to the Aseptic Treatment of Wounds. By Dr. C. Schimmelbusch, Assistant in the Royal Surgical Clinic of the University of Berlin. Preface by Professor E. von Bergman. Translated from the Second Revised German Edition with express permission of the Author, by Frank J. Thornbury, M. D., Lecturer on Bacteriology, University of Buffalo, N. Y., etc. With Forty-three Illustrations. New York: G. P. Putnam's Sons, 1895. Pp. xii–233. [Price, $2.]

Indigestion. An Introduction to the Study of the Diseases of the Stomach. By George Herschell, M. D. Lond. Second Edition. New York: G. P. Putnam's Sons, 1895. Pp. viii–343.

Klinische Vorlesungen über Syphilis. Von Dr. E. von During, Professor für Dermatologie und Syphilis an der kaiserlichen Medizinschule in Konstantinopel, etc. Hamburg und Leipzig: Leopold Voss, 1895. Pp. xvi–320. [Preis, *M.* 6.]

The Diseases and Deformities of the Fœtus. An Attempt toward a System of Antenatal Pathology. By J. W. Ballantyne, M. D., F. R. C. P. E., F. R. S. E., Lecturer on Midwifery and Gynæcology, etc., School of Medicine, Edinburgh. With Plates. Volume II. Congenital Diseases of the Subcutaneous Tissue and Skin. Edinburgh: Oliver & Boyd, 1895. Pp. x–264. [Price, $2.]

Datos para la Materia Médica Mexicana. Primera Parte. Mexico: Oficina Tip. de la Secretaria de Fomento, 1894. [Instituto Medico Nacional.] Pp. 5 to 515.

Weekly Abstract of Sanitary Reports issued by the Supervising Surgeon-General, Marine Hospital Service. Vol. IX. Nos. 1 to 52.

Vital Statistics of Boston and Philadelphia. Covering a Period of Six Years, ending May 31, 1890. By John S. Billings, M. D., Deputy Surgeon-General, United States Army, etc.

Annual Report of St. Mark's Hospital, New York City. March 1, 1894, to March 1, 1895.

New York Eye and Ear Infirmary Reports. Volume III. Part I.

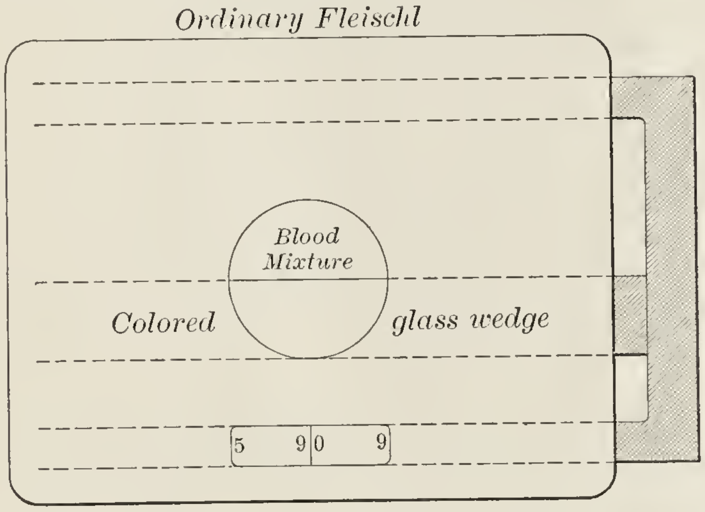
Biennial Report of the St. Peter Hospital for the Insane at St. Peter, Minnesota. For the Biennial Period ending July 31, 1894.

The Seventy-first Annual Report of the Officers of the Retreat for the Insane at Hartford, Conn. April, 1895.

A Remarkable Case of Suppurating Otitis, with Hemiplegia. By Arthur H. Coe, M. D., Spokane, Wash. [Reprinted from the *Medical Sentinel.*]

The Relations of Infectious Processes to Mental Disease. By Charles K. Mills, M. D., Philadelphia. [Reprinted from the *American Journal of the Medical Sciences.*]

Ordinary Fleischl



Fourth Annual Report of the State Board of Medical Examiners of New Jersey, 1894.

A Case of Acute Delirium, with Some Considerations on its Pathologic Aspects. By Thomas P. Prout, M. D. [Reprinted from the *Medical News.*]

Some Physiologic Effects of Music in Hypnotized Subjects. By Aldred S. Warthin, M. D., Ann Arbor, Mich. [Reprinted from the *Medical News.*]

Accentuation of the Pulmonary Second Sound an Important Sign in the Diagnosis of Pericarditis. By Aldred S. Warthin. [Reprinted from the *Medical News.*]

Methods of Chest Examination. Supplementary to Auscultation and Percussion. By Edward O. Otis, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal.*]

The Infectivity of Cancer. A Retrospect and a Forecast. By D'Arcy Power, M. A., Eng. [Reprinted from the *British Medical Journal.*]

Alcoholic Drinks; or, Notes on the Medical, Social, Political, and Religious Aspects of the Liquor Question. By P. M. Lisboa Pinto, F. E. A., L. M. S., Fellow of the Royal Geographical Society, Lisbon, etc. Colombo: Times of Ceylon Steam Press, 1895. Pp. 65.

Some Minor Studies in Nerve-cell Degeneration as Presented by a Case of Localized Cerebral Atrophy. By Thomas P. Prout, M. D., Morris Plains, N. J. [Reprinted from the *American Journal of Insanity.*]

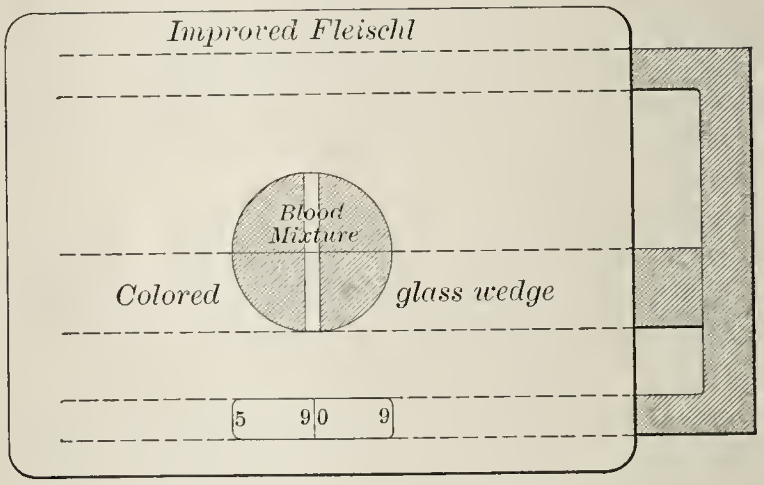
Cerebral Syphilis. By Henry Alfred Robbins, M. D., Washington. [Reprinted from the *Virginia Medical Monthly.*]

New Inventions, etc.

AN IMPROVEMENT WHICH LARGELY FACILITATES THE USE OF THE FLEISCHL HÆMOGLOBINOMETER.

By B. C. LOVELAND, M. D., F. R. M. S.,
CLIFTON SPRINGS, N. Y.

THE device consists of two semicircular pieces of paper or metal attached to the lower surface of the mixing cup, with their straight edges at right angles to the sæptum in the cup, and leaving a straight strip of uncovered glass an eighth of an inch wide only in the bottom of the cup. The strip is cut in the centre by the sæptum of the cup so that the colored wedge passes under one end while the mixture of blood covers the other. Through these one may obtain a more accurate and a quicker estimate of the hæmoglobin, as the device cuts out all of the wedge except the portion opposite the figure on the scale from which the reading of the percentage is to be made.



And, as the cup in the ordinary way places at once before the eye a portion of the wedge comprising ten per cent. of variation in color for comparison with the blood in the other half, which is of an even color, the device described, it will easily be seen, very much simplifies the reading of the percentage, while at the same time it renders the reading much more accurate, as it eliminates the difficulty of estimating a medium shade of red when ten shades or degrees of the wedge are presented to the eye at once. And the eye will involuntarily set for comparison the blood side against the most prominent or dense portion of the wedge side. This same effect may be produced by having the portion of the glass bottom to the cup which I have described as covered by the paper or metal painted carefully over with some very dark paint. The cuts illustrate what I have described.

The reading will also be more accurate if the eyes are rested after the operator thinks he has matched the colors. If he will turn the cup around, thus looking at the wedge through the blood mixture, leaving the other side a white surface, the strong contrast will rest the eye, when, by turning the cup to its ordinary position rather quickly, the operator will readily detect any slight fault in his matching the colors.

Miscellany.

An Action against a Dublin Doctor.—*Kingstown, Ireland, May 15th.*—A very interesting case took place in the Court of Exchequer on the 13th and 14th inst. before Mr. Justice Murphy and a special jury. The action has been brought against Dr. John E. Hadden, of Castlewood Avenue, Rathmines, by the plaintiff, Mr. Andrew Mason, of 54a Rathmines Road, carrying on business as a draper. The action has been brought to recover damages for having "negligently, improperly, and unskillfully diagnosticated as small-pox" a disease which was not small-pox, but, on the contrary, erythema nodosum, for having the patient, a young girl named Maria Hawkins, in the plaintiff's employment, removed to Cork Street Hospital, and for having under the Infectious Diseases (Notification) Act reported the case to the municipal authorities of Rathmines as a case of small-pox, to the injury of plaintiff's business.

The case stands briefly thus: Dr. John E. Hadden is a bachelor of medicine and a bachelor of surgery of the Dublin University. He had attended Mr. Mason's family for the past six years. In December last he vaccinated Mr. Mason's assistants' including the girl Maria Hawkins. On the 10th of the same month he was sent for to visit the girl. She was in bed in a room at the back part of the house, in which he was told some eight girls usually slept. He made a very careful examination, lasting at least half an hour. The girl had a rapid pulse and a very hot feeling. Her temperature was 103° and on her forehead there were several raised papules. The tongue was foul and the breath objectionable. She complained of pains in her back and legs and of severe headache. He found on her limbs symptoms of erythema nodosum. The symptoms distinct from the latter were symptoms of small-pox. Dr. Hadden came to the conclusion that she was suffering from small-pox subdued by vaccination. He told Mr. Mason and recommended the girl's removal to hospital, and she was removed the following day to hospital. Dr. Day, the resident medical officer, diagnosticated the case there, not as one of small-pox, but of erythema nodosum with complications. The moment Dr. Hadden heard that the girl was not suffering from small-pox he offered to give Mr. Mason every opportunity of having the mistake rectified as far as possible, but Mr. Mason would not accept that offer.

Dr. James Little, in the course of examination, said he had had considerable experience of small-pox during the epidemic of 1879. The symptoms described in court would in his opinion certainly lead to the belief that the case was one of small-pox. Having regard to what he had heard, he would not have allowed the girl to remain in the house for an hour longer than necessary. After the evidence had been concluded the jury retired, at three minutes to five o'clock, and at eight minutes to six o'clock found the plaintiff damages in £100.

In to-day's *Irish Times* letters have appeared from well-known medical men, all condemning the verdict made by the jury. One writer says "he trusts the *Medical Press* and other medical journals will organize a fund in order that the medical profession may have an opportunity of practically showing their sympathy by handing him a check to cover the damages and other expenses connected with this lawsuit."

Deformities following Fracture of Bone Shafts, with Observations on the Treatment.—At the recent meeting of the American Medical Association Dr. Thomas H. Manley, of New York, read a paper before the Section in General Surgery in which he said that, of all the serious traumatisms of the body, fractures of the long bones were the commonest. The simple and uncomplicated ones were rarely attended with danger, and, owing to the aids which modern science had placed within our reach, even those of the gravest character might generally be treated successfully if the main vascular channels had escaped injury. In adults, however, perfect restitution of the osseous structure was seldom secured, and probably in the majority of cases deformities of varying degrees followed in spite of any treatment that might be adopted.

Deformity depended, he said, chiefly on two conditions: Something inherent in the patient, and the nature of the fracture. Fracture of a single bone in the forearm or in the leg, away from the articulations, if treated on rational surgical principles, would result in a fair restoration of contour and symmetry. But when both bones of the forearm were completely fractured; when the fracture involved a joint or was accompanied with a subluxation, diastasis, or impaction; when there was a fracture through the humeral condyles into the elbow joint, through the humerus, or through the femur, the question arose, Could we always prevent deformity? Dr. Manley's experience inclined him to believe that in a large number of cases of this kind, after repair was more or less complete, visible imperfection remained. Shortening was really a type of deformity, as it was always attended with an overriding or deflection of the fragments. When an extensive shattering or disorganization of the bone was followed by excessive callus, an annular hyperostosis might occur to such an extent as to leave a distinct hump at the site of injury. At the ankle joint, after severe osteo-arthritic traumatism, the indelible stamp of the fracture so graphically described by Pott pointed with certainty to a peculiar quality of injury long after osseous repair. The compensatory efforts of Nature, in a large measure, secured to the patient a fair degree of functional restoration, but an unmistakable deformity remained. In many cases, however, gross distortion with loss of function implied unskillfulness or neglect.

Dr. Manley classified the non-preventable causes of deformity as those dependent on extrinsic circumstances, and those which followed in consequence of organic pathological conditions. The indications for treatment in average cases were quite simple from a mechanical standpoint, but, he said, there were living tissues to be dealt with, and the question was how to preserve the vitality of the limb and secure osseous repair without disturbing the reposition of the fragments. Fractures of the femur in young children, who were habitually restless, sometimes resulted unsatisfactorily; also in heavy persons past middle life such fractures could not generally be treated successfully. Confinement in bed was badly borne by many patients, and in some cases it was necessary to get them out of bed in order to save their general health, even at the cost of a somewhat deformed limb. In some of the worst cases of fracture that were met with there might be such serious internal injuries that the bone lesion became practically of minor importance, and it might become imperative to direct our attention to the general health rather than to the bone lesion. Under certain circumstances varying degrees of distortion might occur in cases where the attending physician was unable to procure proper mechanical appliances or careful nursing.

Deformities, said Dr. Manley, due to organic imperfections in osseous structures were, owing to their nature, quite beyond our power to prevent, although with few exceptions they might generally be rectified by means of constitutional and local measures. Rickets, struma, scurvy, marasmus or any other constitutional disease attended with malnutrition might interfere with prompt osseous union or so retard it that the fragments, lacking in nutrition or muscular support, might deviate before consolidation was complete. There was another pathological condition, said the author, the real nature of which still remained a mystery, in which the regenerative processes after fracture were quite in abeyance, and this condition was present at all periods of life in both sexes, and in the hearty and vigorous as well as in the frail and anæmic. In a number of cases which had come under Dr. Manley's observation he had noted a tendency to a bowing or deflection of the limb over the callus long after the period when union should have been complete, and many of the worst cases of deformity of the femur that he had seen had followed this condition.

In cases of delayed union or non-union in young, vigorous persons a complete change of diet, the readjustment of the limb, moving the patient, free motion, massage over the point of fracture, and—in cases of non-union of the bones of legs—changing the posture of the body from the horizontal to the upright, might give such a sudden impetus to regenerative processes that, unless great care was exercised, the fragments might suddenly become fixed in a distorted direction. Distortion was more serious, said the author, when it occurred in the legs, although it could be readily concealed unless joint action was compromised. Deformities in the arms were not so common, and, if those at the elbow or at the wrist were excluded, they must be regarded as being comparatively rare. Possibly this might be explained on the ground that fractures through the arm and forearm were less frequent than those through the femur and tibia. As the breaking and displacement of a bone depended on the action of physical forces, it was obvious that it was only by a correct knowledge of the manner in which these acted, and, afterward, by making use of them in various ways, that replacement or rectification was possible, until the natural processes came to our aid, consolidated the fragments, and restored symmetry to the fractured shaft.

In the treatment of fractures in general the first aim should be to prevent deformity or to so minimize it that it would not seriously affect the function of the limb or impair its normal contour. Among the aids of fundamental importance in the treatment of fractures, rest, relaxation, and support occupied an advanced rank. The idea, said Dr. Manley, that attention must be concentrated exclusively on the shattered bone was an erroneous one, as the bone shaft was a passive organ and subordinate to muscular action. The mangled muscles and contused nerves and blood-vessels needed repair as much as the bone; indeed, to their integrity we must look for osseous regeneration. Therefore, in order to secure to the lacerated tissues the necessary rest, we should begin by relaxing the most powerful set of muscles in the limb. With muscular relaxation, resolution of traumatic inflammation, and relief from muscular spasm, the broken bones fell into place, for the innate tendency of fractured bones was to fall into their natural position. Pulling and dragging on the muscles, forcible extension and counter-extension, so generally practised at the present day, would not force muscles into relaxation, but rather provoke them into further and more stubborn resistance.

Splints were but auxiliaries, for they fixed nothing; they only supported. The moment they were applied on the theory of mechanical compression we erred, and were soon reminded of it by severe pain, muscular contraction, or sloughs. Great care should be exercised while splints were in use; in many cases they should be changed frequently, or the seat of fracture inspected, so that any displacement might be corrected. It was well to remember, Dr. Manley said, that the period of time necessary to effect osseous repair was extremely variable. When perfect replacement of the fragments took place and there was only slight injury of the soft parts, union was almost immediate without callus formation; but in many cases union was extremely tardy and imperfect. During the transition stage the nascent bond was passing from a ligamentous condition to that of ossification, and while the new connecting segment was elastic and pliant we should assure ourselves that any tendency to bowing of the shaft was corrected, and a uniform support should be continued until consolidation was complete. Neglect to observe this precaution resulted in many a distorted limb. The tendency of a fractured limb to shrink and wriggle about under any solid, impermeable plaster-of-Paris shield constituted the greatest objection to this mode of dressing, which, theoretically, he said, would seem to be the ideal one, but many deformities had followed its use, and for this reason the author never employed it until all tumefaction had subsided and primary adhesion was complete.

In regard to proper surgical procedures in overcoming osseous distortions, Dr. Manley said that osteotomy was a means of the greatest value in the fractures of children. Osteoclasis was also an important aid in the treatment of fractures of the smaller shafts in young subjects during the earlier stages of ossification. Judiciously employed, it had a large field, and in experienced hands was of great value. When this was not appropriate or failed, we might resort to osteotomy or, more strictly speaking, to osteotomy preliminary to osteoclasis. Modern advances in medical science, said the author, rendered section through living bone a safer procedure now than formerly, but it should not be practised promiscuously or with impunity, for when performed under any other than extreme circumstances it became a most reprehensible undertaking. Osteotomy was often full of peril, both to the life of the patient and to the integrity of the limb. The osseous substance was exquisitely sensitive to and intolerant of mechanical interference or atmospheric irritation, and, if by any prophylaxis this could be entirely overcome, we might then proclaim that the difficulty of dealing with osseous deformities following fractures was solved. In other bones than the femur we might secure fairly good results with osteotomy. In several cases in the author's practice it had served an admirable purpose when the tibia or the ulna had been involved. In these cases, he said, it was sufficient to partly divide one bone and then fracture its fellow. In the leg it would usually be found that the fibula would give way after the tibia had been pressed into place. It was safer, however, not to advise osteotomy unless the distortion was so great as to seriously diminish the functional power of the limb, or it was a source of constant pain to the patient.

Osteectomy, like osteotomy, said Dr. Manley, was always a formidable undertaking as a corrective measure in fracture deformities. It ranked in the same class as a major amputation, for more or less violence was done to the entire limb.

In a certain number of cases of deformity that involved the articulations it might be necessary to practise tenotomy, division of the soft parts, or such measures as would assist us in procuring correction or restitution of function. For most types of osseous arthritic deformities, operative interference promised very little in the way of securing full restoration of function or improvement in appearance. Various efforts had been made in this direction, but, except in elbow fracture, very little progress had been made.

It might be said that, while the correction of deformities occupied an important place in operative and orthopædic surgery, and while, with the aids which modern science had placed within our reach, we might secure results hitherto quite impossible, yet this, like the prevention of deformities, had its limitations. It might be said that with certain elements of the osseous structures, in certain bones, in the young and healthy, very much might be hoped for and accomplished. Our line of action should be by those methods which would not require the application of great force, or were accompanied with extensive mutilation, or endangered the vitality of the limb.

The Education of Neurotic Children.—The *Hospital* for April 27th publishes an article on this subject in which the writer refers to a course of lectures recently delivered by Dr. Blandford on the Diagnosis, Prognosis, and Prophylaxis of Insanity. Dr. Blandford, says the writer, insists upon the great and preponderating influence of heredity in the production of insanity. He also points out that the true prophylaxis of insanity is to be found in the proper regulation of marriage. Many, he says, have hoped that legislation would some day interfere to prevent marriages between persons with neurotic tendencies. But such hopes are chimerical, as we may judge, says the writer, from the fact that so far legislation will not even annul the bond which ties a man or a woman to a partner, perhaps quite young, who is hopelessly insane and who may remain so for the remainder of a long life. It is necessary, then, he says, to turn to the practical and to consider what may be done to preserve the mental health of those who are born with a tendency to mental deficiency or disease.

In early days plenty of food and sleep and careful guarding from all causes of nerve disturbance are to be insured, for it is difficult to exaggerate the evil that may be done to a nervous child by the tales of ghosts, robbers, bogies, etc., with which many children are continuously indulged. The inculcation of the precepts of religion also too often becomes the means by which terrifying ideas are implanted in the infant mind, much to the disturbance of that peacefulness during the hours of rest which is essential to its normal development. It is pitiful, says the writer, to think of the number of children who look forward to bedtime as a time of terror, bury their faces in the bedclothes, and only when exhausted fall asleep haunted by visions of a constant all seeing eye, by dread of unending torments for each unforgiven, perhaps forgotten, little fault, and by fear of lightning and other natural phenomena which they have been taught are instruments of wrath. From all such thoughts the developing brain should be protected. Later on, when education, as it is now understood, begins, the child among whose ancestors neuroses have prevailed requires even more protection, for every influence is often brought to bear to disturb his mental equilibrium. If he is dull and backward he is punished, if he is bright, intelligent, and precocious he becomes the pride of his teachers and is set to win scholarships for the glory of his school. In either case, says the writer, he is exposed to the very turmoil of mind from which he should be most protected.

In the choice of a profession the young man is beset by the terrors and evils of competitive examinations. This brings us, says the writer, to one of the most important points in the prevention of insanity in those predisposed to it—that is, the fitting of the work of life to the capacity of the individual. The ambitions of the parents, combined with the ill-regulated hopes and desires of the son, often drive the latter to undertake responsibilities for which he is by no means fitted, and thus cause a nervous breakdown which could have been avoided. Dr. Blandford says that "it is not difficult to point out the occupations which are unsuited to such a man; it is more difficult to say what is the most suitable. That will be best which entails the least worry and responsibility, which does not involve money losses or great and sudden disappointments." But, says the writer, what sort of a life is this, where is it to be found, and who is to impose it on young men who are often of exceptional brilliancy and precocity? So far as the dullards are concerned, he says, parents should not push them, but accept the fact that they are mentally ill developed and avoid placing them in positions involving responsibility and care. This is a blow to the father's pride, but the son will accept his lot. But the brilliant scion of a neurotic or of an insane family is not so easily dealt with, for at twenty-one he is his own master. It is all the more necessary, then, says the writer, that care should be taken in the early training of those whose family history shows any taint of insanity, and that careful regulation of the mode of life upon which the prophylaxis of insanity depends falls upon the man who has received a heritage of instability of mind, and who may be difficult to control or to persuade.

False Whooping-cough Produced by a Foreign Body in the Larynx.—In the *Journal de clinique et de thérapeutique infantiles* for April 25th M. de Pradel relates the following case: The patient, a child, five years old, had swallowed a small stone. An examination of the throat and of the larynx gave no results, and the author concluded that the stone had gone into the stomach. On the following day he was again called to see the child, who, the mother said, had had an attack of croup during the night. After a careful examination the author could find nothing to support the mother's statement; moreover, the general condition did not warrant such a diagnosis. The symptoms pointed rather to an attack of the stridulous laryngitis so frequent at that age, and M. de Pradel ordered an appropriate treatment. For about ten days very violent fits of coughing, which were accompanied with vomiting, continued and the parents, being somewhat in doubt as to whether the stone had gone into the stomach or not, took the child to the *Hôpital de l'Enfant-Jésus*, where a consultation was held, from which, however, no successful results were obtained, as the mother absolutely refused to allow the child's throat to be examined in any way. During the consultation the patient was taken with a violent fit of coughing, and the diagnosis of whooping-cough was made. For two months the disease ran its regular course without increasing, but also without diminution of the attacks of coughing, which occurred day and night and were accompanied by absolutely characteristic slimy vomitings. At the end of that time another consultation was held, the former diagnosis was maintained, and the following prescription was ordered: Tincture of aconite root and tincture of belladonna, each, seventy-five grains. Five drops of this were given every night and morning, each dose being increased by one drop every two days until twenty drops were given every day. Friction over the back with oil of turpentine was also employed.

In spite of this treatment the whooping-cough persisted, when one day, more than four months after the first attack of coughing, while the child was playing rather roughly with its father, it was taken with a violent fit of coughing and vomiting, during which it brought up a small stone. The stone weighed exactly twelve grains and measured thirteen millimetres and a half in length, eight in width, and four in thickness. That this stone had remained in the larynx during the entire period of the "whooping-cough," says M. de Pradel, there is not the slightest doubt. The onset of the cough immediately after the stone had been swallowed and its sudden and complete cessation after the expulsion of the stone leave no doubt whatever on the subject.

If it is necessary to determine the anatomical and exact region of the larynx where the stone had lodged, it must be conceded, says the author, that it could have been only in the ventricle of the larynx; its difficult and long-delayed expulsion indicated that it had been held there in a rigid position owing to its size and the anatomical arrangement of that region. Is not the fact, asks M. de Pradel, that a foreign body lodging in the ventricle of the larynx and producing by its presence alone an irritation of the ventricle, a hyperæmia of the ventricular mucous membrane, and an abnormal mucous secretion, sufficient to explain the attacks of "whooping-cough" and to confirm the theories of Beau, of Gendrin, and of Niemeyer, who assigned as a cause of this disease a simple catarrh of the respiratory mucous membrane? Would it not be equally logical to admit, he asks, with Trousseau, Roger, and Bouchut, who designated whooping-cough as a catarrh with neurosis, that the irritation produced by a foreign body of the ends of the laryngeal nerves might cause attacks of coughing by extending the excitation of these nerves to the pneumogastric nerve?

For many years, says the author, the parasitic theory in regard to whooping-cough has been asserted by many authors, among whom Ritter described a micro-organism pathogenic of whooping-cough, which he found in the tracheal mucus, with which he obtained pure cultures of a diplococcus. This was inoculated in dogs and caused violent attacks of coughing.

In the foregoing case the author noted an important point: During the four months that the disease ran its course a brother and sister of the patient slept in the same room with him and did not take the disease. This single clinical fact seems to indicate clearly, he thinks, that the child did not have true whooping-cough, or that there exist two kinds, one proceeding from a mechanical and individual irritation and not transmissible, and the other from a micro-organism—the diplococcus of Ritter, for example—and contagious.

If the cause of the whooping-cough that was observed in this case was beyond doubt and it should be unreservedly attributed to the presence of the stone in the ventricle of the larynx, there is a conclusion which we may draw from this fact, says M. de Pradel, and that is, that when a foreign body has been "swallowed" a careful examination of the larynx should be made.

Fat in Pulmonary Consumption.—At a recent meeting of the Pennsylvania State Medical Society Dr. Thomas J. Mays, of Philadelphia, read a paper on this subject in which he remarked that fat was one of the most important, though one of the most unstable, constituents of the human body. It gave weight, rounded off the angular outlines, and protected against cold and injuries. Normally, it fluctuated with the cycle of the seasons, diminished rapidly in disease, and speedily returned during convalescence. Its diminution marked one of the earliest symptoms of pulmonary consumption, hence the index which was afforded by the weighing scales formed an element of precision in the diagnosis and prognosis of this disease.

The fat of the body, he said, was contained in cells which were composed of protoplasm and possessed nuclei. The cells abounded in the interstices of loose connective tissue, and were found under the skin, especially in the soles of the feet, in the palms of the hand, in the buttocks, in the mammary glands in women, around the synovial capsules of the joints, in the orbits, in the medullary canals of bones, in the surroundings of the kidneys and the omentum, and on the surface of the heart.

When an animal fattened it appeared that oil globules were formed within the fat-cells. These globules increased in number while the protoplasm of the cell diminished. These globules were not deposited in the cells in a mere mechanical manner, but they were formed by the cell itself and at the expense of its own protoplasm, which became very much attenuated. It seemed, therefore, that the fat of the body was as much a secretion of the fat-cells as pepsin was a secretion of the peptic glands, or as the oily matter of the skin was the secretion of the sebaceous glands, or as the fat of milk was the product of the cells of the mammary gland.

From the fact that the protoplasm of the fat-cells underwent metamorphosis when the oil globules formed, it seemed quite obvious that other than fatty food was used by the body in the formation of fat, and that in all probability proteid or albuminous food was used for this purpose. It had been shown by Liebig long ago, said Dr. Mays, that fatty, starchy, and saccharine foods did not form the exclusive supply of fat in the body; for the butter in the milk of a cow far exceeded the scanty supply of fat in her food, and the wax which was produced by bees was out of all proportion to the amount of sugar which they consumed in their food. The feeding experiments of Lawes and Gilbert also demonstrated that for every hundred parts of fat in the food of fattened pigs four hundred and seventy-two parts were stored up as fat, showing, therefore, that fatty foods supplied only about one fourth of the fat which was contained in the body.

That proteids formed an important source of fat in the body, he said, was shown by the following facts: Microscopic observation showed that the fat of milk was formed by the epithelial cells of the mammary gland through the probable metabolism of protoplasm. Fat in milk was largely increased by albuminous and diminished by fatty foods. When cheese ripened its proteids were converted into fat. Milk sugar was maintained in abundance in the milk of carnivora even when fed on an exclusive meat diet (Foster). Fatty degeneration, as was often witnessed in the heart and in other important organs, was further evidence that proteid substances were converted into fat.

Dr. Mays said that he did not wish to convey the idea that albuminous foods supplied the greatest part of the fat of the body; we knew that this was done by the carbohydrates; but he laid special emphasis on the fact that fats and oils did not play the important part which they were popularly supposed to do in the nutrition of the animal body, also on the fact that proteids were of greater value as fat-producers in pulmonary consumption than they were generally believed to be. In fact, he said, evidence was not wanting to show, as had already been hinted at, that both fats and carbohydrates diminished the metabolism of the body, while a meat diet enhanced the same, increased the oxidizing activity of the body, multiplied the number of red blood-corpuscles, and led to a rapid consumption of fatty and carbohydrate food. A great deal of harm had followed the doctrine that the fat of the body came only from the fat of the food, and that therefore the only way to fatten a consumptive was to ply him with fats and oils of various descriptions. Every experienced physician knew, said Dr. Mays, that oil and fats produced dyspepsia in many such patients, and did no good in some with whose digestion they seemed to agree, while there were a few who did well under their use, but whose fat did not seem to have any staying qualities. It seemed to him that oily and fatty foods conferred a real benefit only on a minority of consumptive sufferers, and that much greater service was rendered to the nutrition of such patients by the administration of albuminous foods, the important ones among which were freshly expressed beef juice, beef, mutton, lamb, milk, eggs, oysters, clams, liquid peptonoids, beef powder, meat juice, beef peptones, etc.

An important question came up here, said the author, in regard to the influence which rest and exercise had on the fattening process of the human body. Was physical activity more conducive to fat-building than rest, or was it not? This might be said to depend altogether on circumstances. There was no doubt that in health exercise gave both fat and strength, but it was quite different with the invalid. The fat which was stored up in health represented so much surplus capital which was laid up for a rainy day; but the consumptive had no surplus capital and lived, as it were, from hand to mouth. All his energies were devoted to the maintenance of those bodily functions which were immediately necessary to life—such as circulation, respiration, digestion, innervation, etc.—and very frequently these were carried on imperfectly. To him, therefore, exercise was meaningless, for he had no capital to exercise on until he got stronger and laid up some. Hence he must practise economy. He must restrict his outgo and increase his income. This he could do only by resting.

The author had frequently observed that, with no other change in the treatment than the substitution of rest for exercise, consumptives showed a marked and distinctive improvement and gain in flesh.

It was also of great interest in this connection to consider the influence of the nervous system on nutrition. Whether there were special trophic nerve fibres or not, it was quite clear from the large number of experiments which had been performed that the nutrition of that part of the body suffered whose supplying nerve was divided or injured. Clinical evidence pointed out the same. It was well known that in neuralgia, the limb, or area of tissue to which the affected nerve was distributed, became emaciated and lost its fat. Clouston, said Dr. Mays, stated (*Mental Diseases*, p. 469) that thinness was the almost constant accompaniment of melancholia, and that fattening of the patient was its natural cure; also that this depraved or weakened trophic energy speedily tended to end in phthisis pulmonalis. In fact, he believed that melancholia had a special proneness to terminate in pulmonary consumption. Phthisis and melancholia ran a parallel course in this respect. Could we not discern in this, he asked, a confirmation of the view that a causative relation existed between disease of the nervous system and disorder of nutrition? Was it not probable from this that the building of fat was intimately dependent on the integrity of the nervous system? This probability was strongly confirmed by the therapeutic action of strychnine. It was well known that this agent had no other influence than that which it exerted on the nervous system, and yet Dr. Mays said that he knew of no other single drug under the administration of which consumptives fattened more promptly than under strychnine when it was given in gradually increased doses and combined with suitable rest and nutritious food.

While it was true that increase of flesh was always desirable in the treatment of pulmonary consumption, it was a mistake to hold that every patient of this kind must make a prodigious gain before recovery could set in. He believed that women were less inclined to gain than men, and he had known women make an uninterrupted recovery without increasing in weight.

In summing up the principal points, he said, it appeared that the fat of the body was made out of carbohydrates, proteids, and fats; that for fattening purposes proteids and carbohydrates were superior to fats and oils; that the latter were overrated in the treatment of pulmonary consumption; that carbohydrates and fats hindered and proteid foods accelerated metabolism; that rest of the invalid promoted the formation of fat, and that exercise retarded it; that in all probability the production of fat in the body was largely under the control of the nervous system; and that strychnine, through its stimulant action on the nervous system, fattened the consumptive, and increased the number of his blood-corpuscles.

Ichthyol in Fissure of the Anus.—In the *Centralblatt für Gynäkologie* for May 4th there is an abstract of an article on the use of ichthyol in anal and other fissures, by Dr. Van der Willigen, published in the *Nederl. Tijdschr. v. Geneeskunde.* The author reports four cases of fissure of the anus in which healing took place speedily under the application of pure ichthyol. The drug was applied every morning and evening, also after each defecation, by means of a pencil introduced into the anus and rubbed into the parts with a little pressure. He further recommends ichthyol in the treatment of fissure of the vagina, of the lips, of the ears, and of the hands.

The License to Practise in the State of New York.—Dr. Maurice J. Lewi, the secretary of the State Board of Medical Examiners representing the Medical Society of the State of New York, has sent us the following, dated May 23d: So many requests for information relating to the medical laws of the State are being received that it has been thought proper to call the attention of the profession to a feature of the existing law which expires by limitation on the 1st of August, 1895. Par. 148, ch. 661, of the laws of 1893 provides that persons "who matriculated in a New York medical school before June 5, 1890, and who received the degree of M. D. from a registered medical school before August 1, 1895, may without further examination, on payment of $10 to the regents and submitting such evidence as they may require, receive from them an indorsement of their licenses or diplomas conferring all rights and privileges of a regents' license issued after examination." From this it will be seen that after August 1, 1895, whether or not matriculated previous to June 5, 1890, all persons desiring to practise in this State must pass the medical licensing examinations. It will therefore be well for all entitled to the privilege of this exemption to file their applications for indorsement with the regents as soon as possible.

The legislature of 1895 has restored the penalty feature of the law as it stood previous to revision by the statutory revision committee, and medical malefactors and others unlicensed and unregistered may once more be prosecuted in the criminal courts. A vigorous enforcement of the laws by county medical societies is urged in hope of the benefit to be derived by the public as well as for the good name of the profession of medicine. The legislature of 1895 has also passed a law which will make it necessary for every person receiving the degree of M. D. from a medical college in the State of New York, after the year 1900, to have had an academic education equivalent to that required for graduation from a first-class high school or academy.

The Ontario Medical Association.—The fifteenth annual meeting will be held in Toronto on June 4th and 5th, under the presidency of Dr. R. W. Bruce Smith, of Hamilton. The programme includes the following papers:

The President's Address, by Dr. R. W. Bruce Smith, of Hamilton; Intestinal Complications in Gynæcic Surgery, by Dr. J. B. Murphy, of Chicago; Embryonic Remains in Cases of Eczema of the Navel, by Dr. Robert T. Morris, of New York; The Operative Treatment for Bronchocele, by Dr. Francis J. Shepherd, of Montreal; Laryngeal and Tracheal Tuberculosis—The Importance of their Early Recognition and Treatment, by Dr. F. W. Chappell, of New York; A Discussion on Diphtheria, by Dr. W. J. Wilson, of Richmond Hill, Dr. G. M. Aylsworth, of Collingwood, and Dr. J. T. Fotheringham, of Toronto; A Discussion on Delayed Union in Fractures, by Dr. George A. Peters, of Toronto, Dr. I. H. Cameron, of Toronto, and Dr. A. McKinnon, of Guelph; A Discussion on the Physiological and Therapeutic Action of Iron, with a discussion of its Newer Pharmaceutical Compounds, by Dr. H. A. McCallum, of London, Dr. J. H. Sangster, of Port Perry, and Dr. A. T. Rice, of Woodstock; A Discussion on the Primary Repair of Genital Lesions of Childbirth, by Dr. K. N. Fenwick, of Kingston, Dr. H. Meek, of London, and Dr. H. T. Machell, of Toronto; The Present Position of Antitoxine in the Treatment of Diphtheria, by Dr. Charles Sheard, of Toronto; Antitoxine in the Treatment of Diphtheria, with Clinical Notes of Cases, by Dr. J. D. Edgar, of Hamilton; Calomel Fumigation in the Treatment of

Diphtheria, by Dr. T. F. McMahon, of Toronto; Phlegmasia Dolens—Report of Cases, by Dr. J. Campbell, of Seaforth; Constipation, by Dr. H. Arnott, of London; The Treatment of Pulmonary Tuberculosis, by Dr. D. Marr, of Ridgetown; A few Remarks on Home and Foreign Climate in Consumption, by Dr. E. Playter, of Ottawa; Science in Medicine, by Dr. F. Oakley, of Toronto; Hydrotherapy in the Treatment of Exanthematous Fevers, by Dr. A. K. Sturgeon, of Petrolia; Inflammations of the Optic Nerve—their Causes and Prognosis, by Dr. G. S. Ryerson, of Toronto; Cataract, by Dr. R. A. Reeve, of Toronto; A Case of Pneumoperitonæum, by Dr. C. J. Hastings, of Toronto; Puerperal Insanity, by Dr. N. H. Beemer, of Mimico; Narcotic Addiction, by Dr. D. Lett, of Guelph; Notes on Paresis, by Dr. Ezra H. Stafford, of Toronto; The Use of the Stomach Tube, by Dr. G. Hodge, of London; A Case of Scurvy in a Child, by Dr. H. T. Machell, of Toronto; A Case of Progressive Unilateral Facial Atrophy, by Dr. T. F. McMahon, of Toronto; A Case of Morphœa, by Dr. A. McPhedran, of Toronto; Notes on an Epidemic of Hepatic Amygdalitis, by Dr. J. R. Hamilton, of Port Dover; The Antiseptic and Eliminative Treatment in Typhoid Fever, by Dr. W. B. Thistle, of Toronto; Traumatic Hysteria, by Dr. D. C. Meyers, of Toronto; Currents and Counter-currents in Therapeutics—A Plea for Rationalism in the Treatment of Disease, by Dr. J. H. Sangster, of Port Perry; The Intelligent Use of Rectal Injections with an Improvement of the Ordinary Enema Syringe, by Dr. P. P. Burrows, of Lindsay; Some Remarks on Pneumonia, with the Report of an Interesting Case, by Dr. R. V. Bray, of Chatham; Metallic Sutures in Fracture of the Patella, by Dr. J. J. Cassidy, of Toronto; Cases of Postpharyngeal Abscess, Double Cephalæmatoma, Leucoma, Colitis, etc., by Dr. G. Acheson, of Galt; Traumatic Septicæmia, by Dr. J. C. Mitchell, of Enniskillen; An Operative Procedure for Spina Bifida, by Dr. H. Howitt, of Guelph; Intestinal Anastomosis with Murphy's Button, by Dr. J. L. Davison and Dr. L. Teskey, of Toronto; A Case of Anterior Abdominal Nephrectomy for Calculus, by Dr. L. MacFarlane, of Toronto; An Operation for Harelip, by Dr. A. Groves, of Fergus; A Case of Ectopic Gestation of Four Months and a Half; Operation and Recovery—A Case of Mental Aberration following the Removal of an Ovarian Cyst, by Dr. W. J. Gibson, of Belleville; Tumors of the Bladder—Report of Cases, by Dr. F. LeM. Grasett, of Toronto; Seminal Vesiculitis, by Dr. E. E. King, of Toronto; Foreign Bodies in the Knee Joint, by Dr. G. Bingham, of Toronto; Modern Experimental Surgery on Man and Woman; a Criticism of Operations done and the Results obtained, by Dr. J. F. W. Ross, of Toronto; The Use of Ichthyol in Gynæcology, by Dr. L. Sweetnam, of Toronto; The Use of the Projection Microscope in the Teaching of Anatomy, by Dr. A. Primrose, of Toronto; A Display of Bacteria, by Dr. J. Caven and Dr. F. N. Starr, of Toronto; and Notes on Carcinoma, by Dr. H. B. Anderson, of Toronto.

An Unusual Case of Thyreoid Disease.—In the *Lancet* for May 18th Dr. J. Hilton Thompson relates the following case, which, he says, is one of considerable interest owing to recent observations concerning the functions of the thyreoid gland: A young man, aged nineteen years, came to the author some time ago with the following family history: The father was neurotic and criminal; the mother also was neurotic. His friends stated that his manner had been peculiar, but could not say in what respect. The patient complained of a feeling of fullness in the head and what he termed "funny feelings," followed by depression of spirits. Dr. Thompson noticed that the neckband of his shirt was unbuttoned; on drawing his attention to it he said that it was too small for his neck. The author then amined his throat, and found the thyreoid gland considerably and uniformly enlarged. The patient's face was slightly flushed and the pupils somewhat dilated. He was perfectly rational in his conversation. Potassium bromide in combination with liquor arsenicalis was prescribed. In a week the patient was in his usual health, and the thyreoid gland had returned to its ordinary size. Three months after the author was called to see this patient again. He found him in bed in a state of intense excitement, and considerable difficulty was experienced in keeping him from hurting himself. When spoken to he answered rationally, but apparently with great effort. Every now and then he would have exacerbations of excitement, throwing himself about on the bed and punching his own head, or trying to dash his head against the bedpost. When he recovered from one of these attacks he usually appeared to be very hungry, generally demanding hot buttered toast. The thyreoid gland was much larger than during the first attack; the shirtband would not button by an inch and a half. The face was usually flushed, but after the exacerbations became pale. There was no exophthalmia. There was no trouble with the excretions. Drugs had no effect. At the end of ten days Dr. Thompson had him removed to the workhouse hospital. While there he had two attacks. When he returned home he appeared to be in his ordinary health. The thyreoid gland had shrunk to its normal proportions. During the following six months this patient had two slight attacks similar to the first described, and in each the thyreoid gland was distinctly enlarged. The author says he has never previously seen or read of a case of this description. The temporary enlargement of the thyreoid gland is the most peculiar feature. It appears probable, he says, that the increased size of the gland was the result of increased physiological action, the nervous symptoms that were such a prominent feature of the case being the result of poisoning by the large and unusual quantities of thyreoid secretion thrown into the circulation.

The Use and Abuse of Antipyretics.—At a recent meeting of the West London Medico-chirurgical Society, a report of which appears in the *Lancet* for May 11th, Dr. William Hunter read a paper in which he pointed out that the extent to which antipyretic agents were used and their manner of employment were greatly influenced by our views of fever. After considering the analgetic properties of the more recently introduced antipyretics derived from coal-tar products, such as antipyrine, phenacetine, and acetanilide, he said that the control of the nervous system was one of the principal points in the treatment of fever. The proper object of using such drugs was not to abolish fever by a summary process, but rather to bring the febrile process within reasonable limits. The administration of these remedies, he said, should always be cautious, more particularly in the case of acetanilide, the usual dose of which, as given in books (from three to ten grains), was much too large; it should be from one to three grains.

Dr. Banning remarked that no antipyretic equaled the use of cold sponging and wet packs, either in efficiency or in safety. Dr. Eccles believed that the direct action of antipyrine could be attributed to its reducing qualities, removing oxygen from the protoplasm of the nerve cells, and thus diminishing activity and producing analgesia Dr. Atkinson said that he had not found any benefit follow the use of antipyretics, and thought that, as the temperature always fell before death, high temperature by itself would not kill a patient. Mr. McAdam Eccles referred to surgical cases where high temperature was due to nerve influence, especially in cases of head injury followed by high fever without sepsis, and to the so-called catheter fever. He said that after injuries of the head the temperature was often different on the two sides.

Original Communications.

DERMATOLOGICAL NOTES FROM THE KINGS COUNTY HOSPITAL.

By HENRY H. MORTON, M. D.,
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EXPERT IN CONTAGIOUS DISEASES, BROOKLYN HEALTH DEPARTMENT.

Dermatitis Exfoliativa Neonatorum.—In 1878 Professor von Rittershain described[*] a disease of the newly born, which had never been previously reported and which occurred for the first time in his large experience, extending over a number of years, in connection with the Findel Anstalt in Prague, in this institution in 1868. In the succeeding ten years two hundred and ninety-seven cases occurred, of which one hundred and forty-five terminated fatally. The children were generally attacked in the second week, sometimes in the fifth week, but seldom later.

The prodromal stage consisted in a mere increase of the normal epidermic exfoliation, which gave place to the erythematous stage. A redness would begin upon the face and facial mucous membrane which rapidly extended over the entire body. The stage of exfoliation soon followed; the epidermis became thickened and raised up off the cutis. Friction over the surface tore off the scales in large flakes, and on the hands and feet the epidermis could be pulled off like a glove.

The exposed cutis became covered with dried secretions forming crusts. Death resulted from general exhaustion, lung-complications, or intestinal catarrh.

Von Rittershain expressed himself as very much in doubt as to the ætiology of the disease, but assigned as a possible cause, septic infection through the buccal mucous membrane.

Caspary[†] considers the disease to be an epidermolysis of unknown nature, with secondary hyperæmia of the cutis, and regards it as an acute disturbance occurring in the external layers of the skin which do not contain blood-vessels.

G. T. Elliott states that Riehl has found a fungus with long, thin mycelia,[‡] and concludes this to be the cause of the disease.

During my service at the Kings County Hospital I met with, for the first time, a case similar to those described by von Rittershain.

The mother was a healthy young Irish woman, twenty-two years of age, who was delivered of her first child in the hospital. The labor was normal in character and the child weighed eight pounds. Seven weeks after the child's birth it was transferred to the dermatological wards on account of an eruption on its skin, with a history of having been perfectly well for the first four weeks. The eruption began on the face and in two days the entire body was bright red. In about a week the epidermis began to chip and scale off and continued to scale for three weeks. The desquamation lasted a few days, and when the entire epidermis had desquamated the body remained smooth and red for a few days, and then desquamated again, beginning first as a mere cracking of the epidermis, with a subsequent peeling. The epidermis has been exfoliated at three different times. At the end of three weeks the face was looking clean and the head was covered with a dry crust. The nails were not affected, and the palms and soles were free at all times. The child was well nourished in appearance and not notably restless.

The treatment which was employed was linseed oil externally applied on cloths kept in contact with the skin continually and frequently renewed, and Fowler's solution in drop doses three times a day internally.

After the treatment was begun the child did not desquamate again, the redness and congestion of the skin gradually subsided, and the child went out well.

I believe, however, that the process was practically at an end before the treatment was instituted, and the cure was due to the inherent tendency of the disease to recovery in a vigorous child.

An Eruption resembling Pityriasis Maculata et Circinata probably induced by Alcohol.—The patient, aged twenty-eight years, and a domestic by occupation, drank heavily for two weeks prior to the appearance of the eruption, which occurred first as one spot on the face and then showed itself over the entire body in twenty-four hours. (Fig. 1.)

The patient states that it was bright red in color when it first appeared, but has become darker since then. It has lasted for one week, and now presents the following appearances:

Description.—The eruption is located on the face, neck, trunk, arms, thighs, and legs. It consists of circular spots, not elevated above the skin, of a dark-red or brick color, ranging in size from a three-cent piece to an inch in diameter, with well-defined borders. Some of the larger spots seemed to be formed by the coalescence of two or more smaller ones. On the abdomen the macules are larger in size and not so sharply defined at the periphery. There is no tendency toward a clearing up in the center. Slight pressure produces disappearance of the spots on the body, but on the legs they do not entirely disappear on pressure, a slight degree of pigmentation remaining behind. There has been no itching of the eruption at any time. A certain amount of desquamation is taking place which is not branny in character, but consists in a loosening *en masse* of the entire epidermis covering each macule. When this first begins it gives rise to a glazed appearance over each macule, and on pinching up the skin very small fine wrinkles are formed; as the desquamative process goes on the central portion of the loosened epidermis is thrown off in many of the spots, leaving a ring of loosened epidermis attached all round to the peripheral margin of the macule.

The patient admits having had coitus three months ago, but not since then, and denies having had any sores on the vulva or other signs of syphilis; examination shows no evidence of a chancre or mucous patches. Lymphatic glands are not enlarged, with the exception of some in the groin.

The patient was kept under observation without any treatment excepting a simple placebo internally, and in the course of about ten days the spots finished desquamating, the congestion subsided, and she was discharged as cured from the hospital.

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[*] *Central Zeitung für Kinderheilkunde*, 1878. Behrens claims in the *Vierteljahrschrift für Dermatologie und Syphilis*, 1879, page 191, that the disease reported by Rittershain is identical with pemphigus foliaceus of Cazenave. In the *Archiv für Kinderheilkunde*, 1880, page 53, von Rittershain replies to Behrens's article and shows that dermatitis exfoliativa neonatorum is an entirely distinct disease.

[†] *Vierteljahrsehrift für Dermatologie und Syphilis*, 1884.

[‡] Morrow's *System of Genito-urinary Diseases, Syphilis, and Dermatology*, vol. iii, page 319.

Pityriasis maculata et circinata, as it is called in the classification of the American Dermatological Association, or pityriasis rosea, as its original describer, Gibert, named it, is one of the rarer skin diseases, having occurred only 278 times out of 205,000 cases of skin diseases, representing the combined returns of the American Dermatological Association from 1878 to 1893.

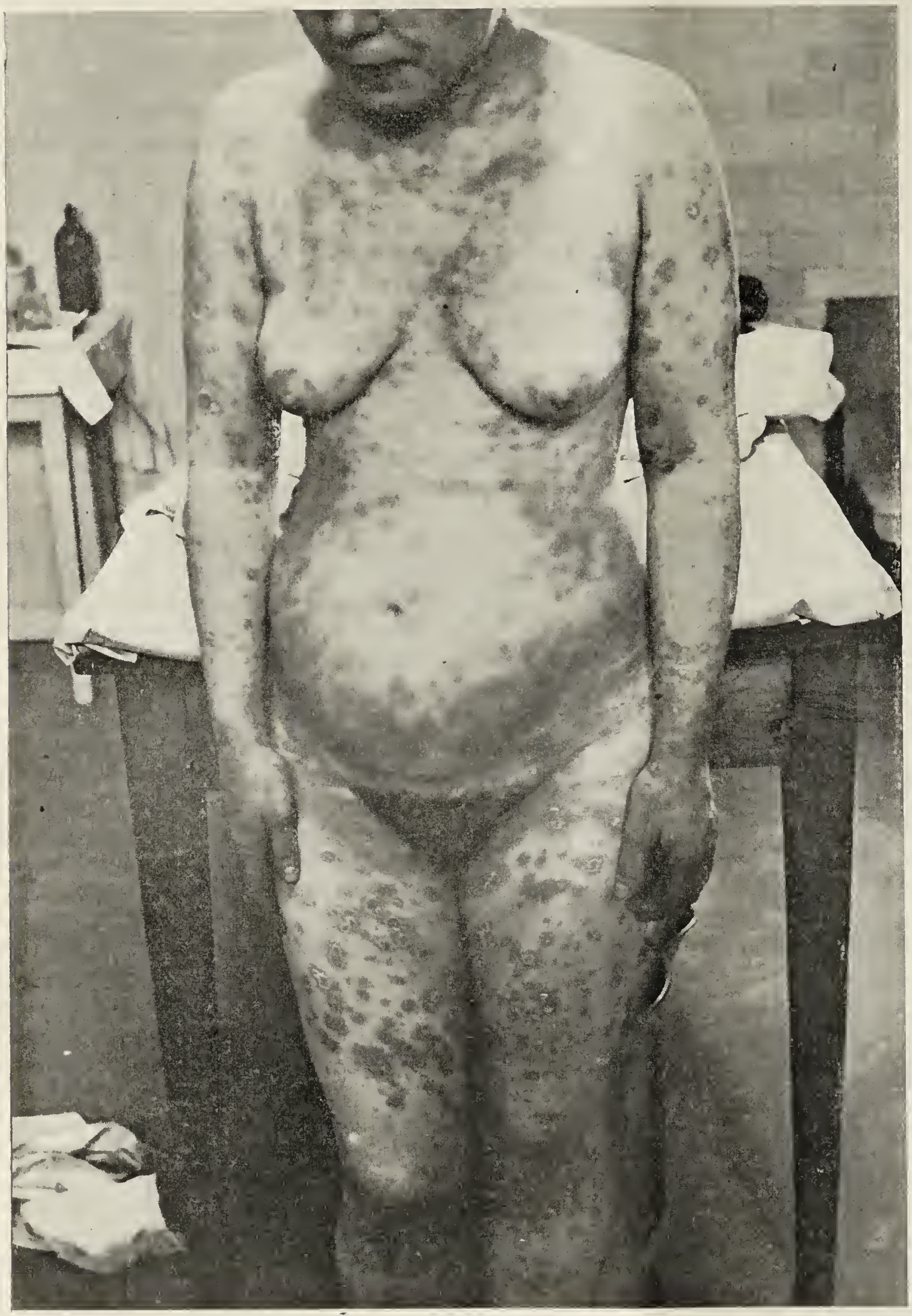

FIG. 1.

Its ætiology is still a matter of dispute,* many authorities holding that it is probably due to some parasite which has not yet been identified and named. Microscopic examinations of the scales have in some instances shown cocci, but identical in appearance with the organisms found in other desquamating non-contagious diseases.

Others, again, consider it as a reflex result of the uric-acid diathesis or of digestive disturbances.

Kaposi * denies its separate existence, and believes it to be the same as herpes tonsurans maculosus, or ringworm of the body, which he proves by finding the trichophyton constantly present and having a direct relation in its life and growth to the duration of the disease, and also by the experimental and accidental inoculation of other patients with the spores, with the result of producing the disease in them.

In the case I have reported above I examined the scales microscopically, but did not find any fungi or spores, and I should be inclined to consider the outbreak in this case as directly due to the ingestion of large amounts of alcohol and its irritating effect upon the vaso-motor centers supplying the cutaneous arterioles.

The chief interest in pityriasis maculata, however, lies in the extreme similarity of its appearance to other diseases of the skin, notably the macular or erythematous syphilide, and, since so many unpleasant situations may arise from mistaking an innocent and non-contagious skin eruption for a communicable and generally considered disreputable disease, it is always well to bear this affection in mind before making a positive diagnosis of syphilis in every questionable case, although the lighter tint, branny scaling, and absence of mucous patches and glandular enlargements will generally serve to exclude the latter disease.

Eczema Marginatum.—Eczema marginatum, as it was named by Hebra, who first described it, or tinea trichophytina cruris, or ringworm of the crotch, as it is sometimes called, is the result of the local inoculation of the trichophyton fungus, and the peculiarities of its growth and distribution are favored by the local conditions of the parts upon which the organisms become ingrafted. It is not an uncommon disease in adults in this country, and occasions great discomfort from the severity of the itching, which at times, particularly at night, is most intense. The scratching by which the patient attempts to relieve himself tears off the upper layers of epidermis and numerous bleeding excoriations are the result. It is very obstinate in yielding to treatment, and after it is apparently cured a relapse often takes place, for the reason that a few of the fungi have been left to form a new local center of infection from which the disease rapidly spreads again. In the tropics it is not only more frequent, but from the constant sweating macerating the skin a fertile field for the luxuriant growth of the parasite is afforded, and it reaches an extent to which we seldom see it here. Under these conditions it is spoken of under the name of "Burmese ringworm" and "Chinese ringworm." *

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* *Journal of Cutaneous and Genito-urinary Diseases*, December, 1893.

* *Pathologie und Therapie der Hautkrankheiten*, p. 916.

In this climate the eruption is usually limited to the inner side of the thighs, the perinæum, anal folds, and scrotum, but it may extend on to the abdomen and buttocks. It begins as a small, round, red, inflammatory patch, which rapidly spreads, often having a tendency to heal in the center and leaving a mere brownish pigmentation to indicate its former site. But its particularly marked feature is the abrupt ridge which bounds it on all sides, even when the skin within is nearly normal in appearance.

It is this elevation of the margin of the patch, and the sharp line of demarcation between it and the healthy skin without, that earned for it the name of eczema marginatum, and is the important point upon which the diagnosis from ocular inspection is made. This diagnosis can be readily verified by examining some of the epidermal scales soaked in dilute liquor potassæ under a moderately high-power objective, which shows numberless round black dots in and upon the epithelial cells, sometimes arranged in clusters and sometimes separate, and often accompanied by threads or mycelia.

In the case reported below, the child had been in the children's ward at Kings County Hospital, where many of the children had ringworm of the head and body.

The peculiarities of the case are the extent and distribution of the eruption, the fact that it produced but little discomfort, and the readiness with which it yielded to treatment—all of which features can be accounted for by considering the thin delicate character of an infant's skin.

J. S., aged six months, mother healthy and free from syphilis. The child was nursed, its digestion was in good order, and it was well nourished in appearance. The eruption appeared four or five weeks before I saw it first, beginning around the vulva and gradually increased in extent, spreading continuously at the margin. At this time it was located around the vulva and anus and on the inner side of the thighs, extending on to the abdomen and on the buttocks. The eruption was smooth, bright red, not elevated above the surface, and with but little scaling except at the margin of the patch, which was slightly elevated. There was a very abrupt line of demarcation between the healthy and the diseased skin. There was neither ulceration nor weeping, and the skin inside the boundaries of the line of demarcation was smooth and healthy, and except for the congestion would have been normal in appearance.

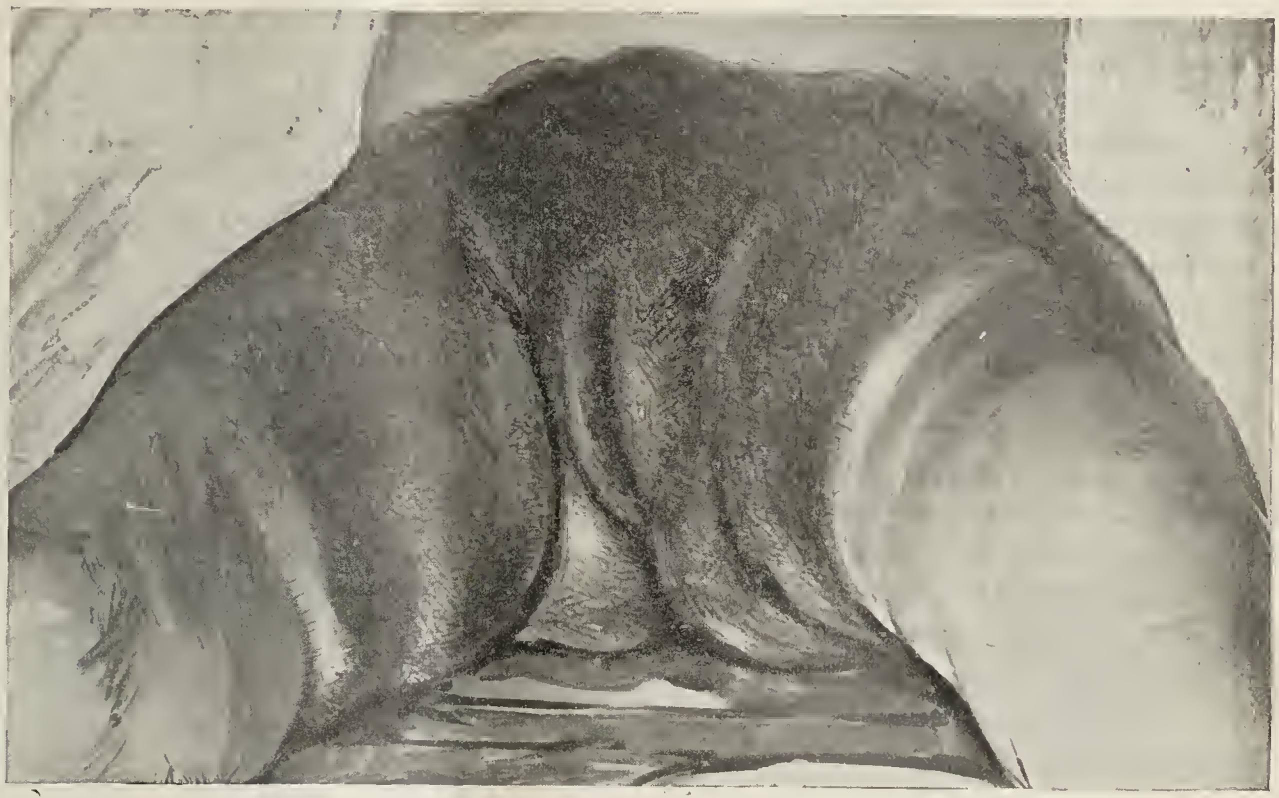

Fig. 2.

The umbilicus was similarly affected. There were two spots on the abdomen and three on the back, of about the size of a cent, dry, bright red, sharply defined, and covered with adherent scales. A microscopic examination of scales scraped off showed large numbers of round spores in and upon the cells.

A two-per-cent. resorcin ointment was ordered to be rubbed thoroughly into the spots, and in the course of six weeks the lesions disappeared completely and the skin was left smooth and natural in color and texture.

40 Schermerhorn Street.

Experimental Anatomical Investigations into the Influence of Tuberculocidin and Tuberculin upon Inoculation; Tuberculosis in Rabbits' Eyes.—Baas (*Arch. für Ophthal.*, xxxix, 4) draws the following conclusions from his investigations:

1. Neither tuberculocidin nor tuberculin can prevent or put a stop to the process of inoculation-tuberculosis once started in a rabbit's eye, much less cure it.

2. There is no essential difference in the course of the tuberculous process under tuberculocidin or tuberculin.

3. The tubercle bacilli seemed to be met with in greater numbers in the animals inoculated than in the control animals.

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* I am informed by a patient who spent some time in Cuba that the natives are in the habit, after they have taken long rides on horseback, of washing the seat and inner margin of the thighs with brandy, probably with a view to prophylaxis against infection with the trichophyton.

AN ELECTRIC PRESSURE SOUND FOR THE DIRECT VIBRATION OF THE MEMBRANA TYMPANI.[*]

By JOHN C. LESTER, A. M., M. D.,
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FOR THE EYE, EAR, THROAT, AND NOSE;
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THE value of vibratory massage in the treatment of diseases, especially the atrophic, of the upper air-passages, has been fully attested by many careful observers of recent date. Dr. Michael Braun,[†] of Triest, in a paper read before the International Medical Congress at Berlin, was the first to call attention to the value of massage in diseases of the nasopharynx.

Dr. Carl Laker[‡] has also written an exhaustive monograph on the same subject, in which he enthusiastically indorses this method of treatment. To Dr. W. Freudenthal,[#] of New York city, perhaps more than to any other, is due the honor of having devised an electrical instrument for massage in diseases of the nose and throat. More recently Dr. G. Melville Black,[‖] of Denver, calls attention to the value of *lateral vibratory massage* in diseases of the nasal mucous membrane. Possibly the inspiration of all these writers on the value of massage in naso-pharyngcal diseases was received from an investigator no less distinguished in another field—Dr. August Lucae.[△] In an article on A New Method for the Mechanical Treatment of Chronic Diseases of Motion in the Conducting Apparatus of the Acoustic Organ, Lucae first described an instrument for direct mechanical vibration of the membrana tympani. Lucae's device consisted essentially of a steel sound carrying at its end a hollow cone, which is controlled by a handle composed of a small tube and an adjustable spiral spring. The cup-shaped extremity of the sound is applied to the short process of the malleus, and, being manipulated by the hand of the operator, must necessarily be limited as to degree, extent, and number of impulses.

The fact that so simple and crude a mechanical device has led to marked therapeutical results in certain forms of middle-ear disease, as has been certified to by its author and other eminent aurists, sufficiently excuses the writer for presenting the following illustrations and description of an instrument which has proved more than satisfactory in those cases of impaired hearing and tinnitus which are directly traceable to some defect in the conducting apparatus of the ear.

In the first illustration (Fig. 1) the instrument is shown in position. As will be seen, the head of the patient is turned slightly toward the opposite side as for an ordinary examination of the middle ear, and firmly fixed in this position. An ordinary round ear speculum is introduced, and the canal illuminated in the usual manner. The speculum is omitted from the illustration in order to show more clearly the position of the sound as it enters the external auditory canal. The motor with pressure sound attached is shown in Fig. 2. The right hand grasps the handle of motor, with the thumb resting on the button of the contact spring. The corrugated handle B (Fig. 3) of the pressure sound A (Fig. 3) is firmly held between the thumb and index finger of the left hand. The tip of the little finger is made to rest gently on the head of the patient immediately behind the auricle, and the sound is introduced parallel to the anterior superior wall of the auditory canal, until the cylindrical extremity of the spiral end D (Fig. 3) rests upon the base of the short process of the malleus. The short process of the malleus is selected as the point of contact, as it has been demonstrated by Lucae[*] that "if the malleus is still movable, more or less free movements are seen at once to take place in the whole drum membrane, which in the majority of cases correspond to the movements of the short process—*i. e.*, occurring inward on pressure upon the latter, and outward on removal of pressure." Dr. E. B. Dench,[†] in his recent work on the ear, referring to the same subject says: "It has been demonstrated that pressure exerted at the short process of the malleus is communicated directly through the incus to the foot plate of the stapes, and from this to the labyrinth."

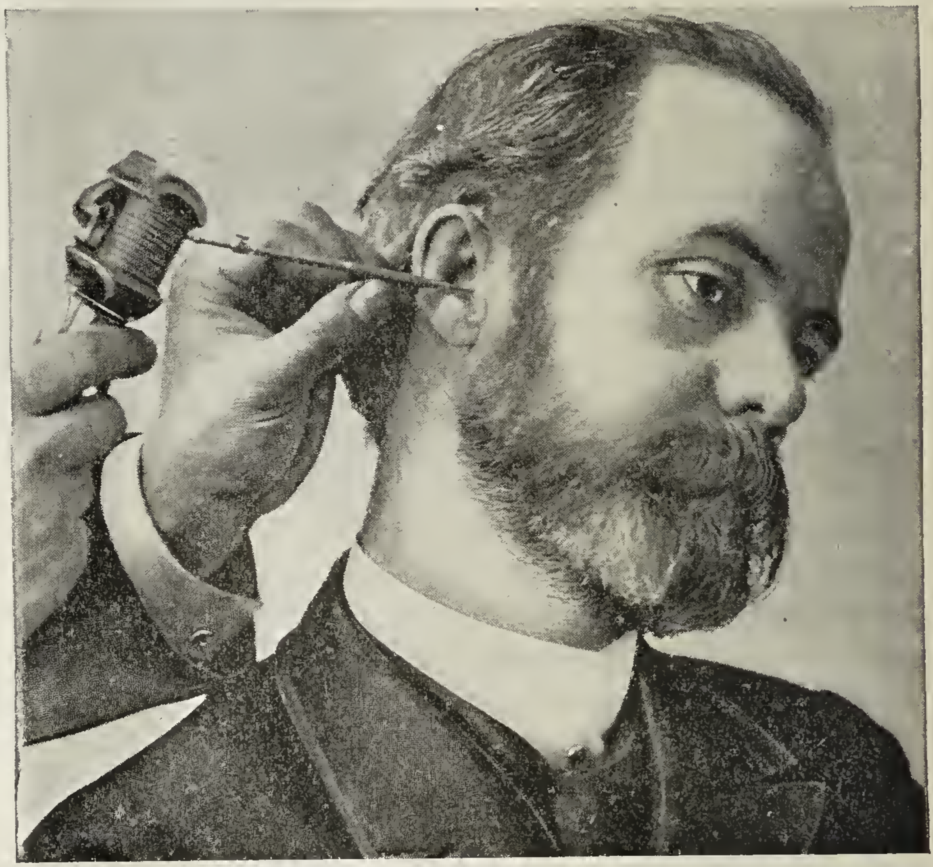

FIG. 1.—Motor and pressure sound in position.

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[*] A rough model of this instrument, which the writer intended to have had presented to the Section in Otology of the American Medical Association, at Washington, in 1894, arrived too late for such presentation.

[†] *Verhandlungen des 10. internat. med. Cong.*, Berlin, 1890.

[‡] *Die Heil-Erfolge der inneren Schleimhautmassage*, Graz, 1892.

[#] Internal Massage in Diseases of the Nose and Throat. *Medical Record*, vol. xlviii, No. 4.

[‖] New Instrument for Vibratory Massage of the Nasal Mucous Membrane. *N. Y. Med. Jour.*, vol. lx, No. 25.

[△] *Archiv für Ohrenheilkunde*, Band xxi, 1884.

[*] *Archiv für Ohrenheilkunde*, vol. xxi, p. 84.

[†] Dench. *Diseases of the Ear*, p. 382.

When contact is made with the pressure button before referred to, vibrations ranging from five hundred to fifteen hundred or more a minute, judging from the note obtained from the revolutions of the armature, are produced. The extent or length of the vibrations is thoroughly controlled by the eccentric throw G (Fig. 3) and the binding screw H (Fig. 3), the range being from zero to half an inch.

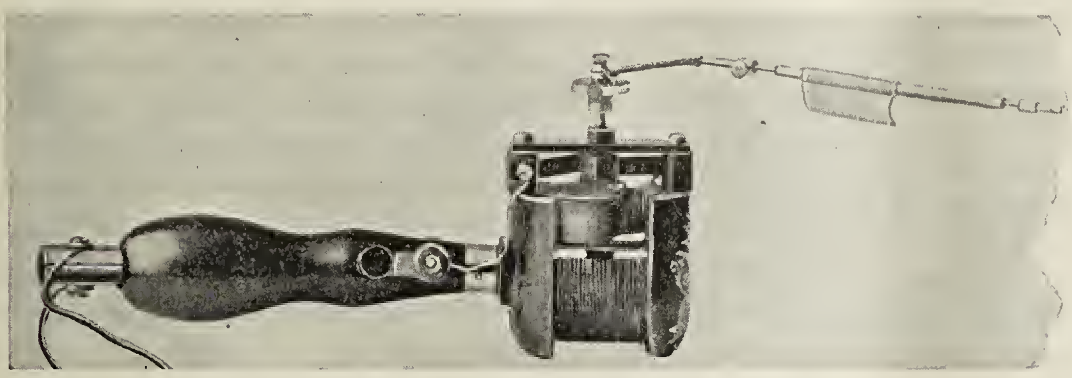

Fig. 2.—Motor with pressure sound attached.

In the cases so far treated the best results have been obtained by a minimum length or extent of vibrations and a maximum number of vibrations. It is seldom that the binding screw has been further removed from the center of the eccentric throw than a sixteenth of an inch, and when this minimum length of stroke has been adhered to, in no case has the patient experienced pain.

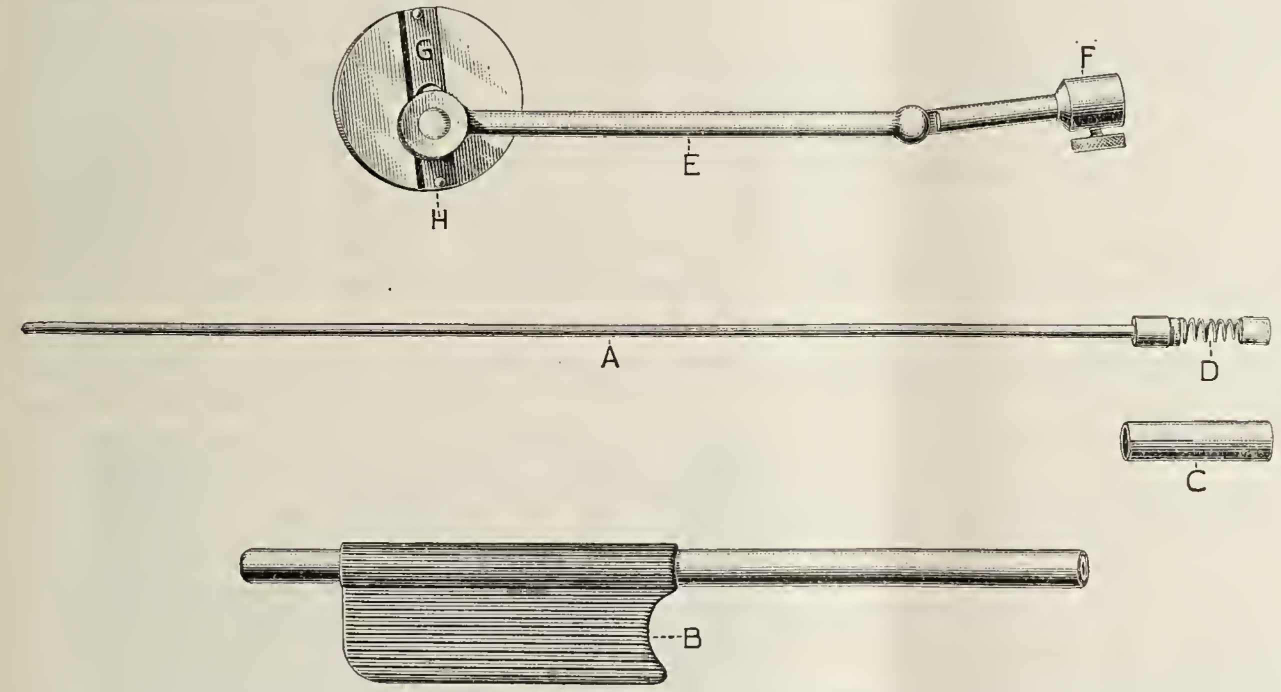

Fig. 3.—G, eccentric throw; H, stud and sleeve with binding screw; E, adjustable connecting rod or shaft; F, receiving socket with binding screw for pressure sound; A, pressure sound and spiral spring (D); C, protecting cap for spiral spring when not in use; B, corrugated handle and tube.

In a few instances, where a slight discomfort has been noticed, examination has shown this to be due to undue pressure on the speculum. Eczematous and excoriated canals, of course, must be cured before beginning the massage of the drum membrane.

The duration of treatment varies, the average being from three to ten seconds at each sitting, and should be repeated from two to three times a week.

A few mechanical hints, developed from several months' use of this instrument, may not be unwise at this point before presenting a few histories illustrating its therapeutic value.

The motor and sound should be firmly and steadily held in the same plane (see Fig. 1). As the motor and sound are carefully adjusted to run smoothly at right angles, any twisting of the motor will cause an immediate binding of the shaft E (Fig. 3). The pressure sound A (Fig. 3) is made an inch longer than the handle B (Fig. 3), to allow for the length of vibration, and the handle *must* be held in the center of the sound.

The cylindrical end of the sound A (Fig. 3) enlarges toward its distal extremity and in shape resembles more nearly a truncated cone. It is hollowed out, as will be seen by the dotted lines in the cut, not only to better adapt itself to the short process of the malleus, but also to receive a pledget of absorbent cotton or other soft material in order to prevent any possibility of mechanical injury. Sounds with spirals of different strengths have been found necessary, and in every case the writer has found it wiser to begin with the one of least resistance, and to continue its use until the patient's confidence has been secured and a certain degree of tolerance obtained. The motor is adapted to a two-volt current. Any good storage cell will suffice.

A few brief histories are presented to show the results obtained. In each case reported other methods of treatment had been persistently tried without lasting, and I might say with no, benefit.

Case I.—Essie L., aged nineteen years; occupation, dressmaker. Came to St. Bartholomew's clinic for treatment on December 4, 1894. Complained of deafness and constant ringing in both ears. The following history was obtained: Deafness and tinnitus in both ears for three years; unable to state in which ear symptoms began first; has had treatment for nine months, with the result of a slight improvement in hearing, but no relief from the tinnitus; never had pain or discharge from either ear; no assignable cause; no heredity.

Examination.—Auricles and canal normal; both membranæ tympani uniformly cloudy and moderately retracted, but not funnel-shaped; light reflex lost; short process not unduly prominent; little or no fibrous tissue; membrane moved throughout by Siegle's otoscope; handle of malleus slightly foreshortened; Eustachian tubes patulous; watch heard on contact only; bone conduction markedly increased; lower tone limit elevated; chronic catarrhal inflammation of the nasopharynx.

This case will be readily recognized as one of chronic catarrhal otitis media.

Treatment consisted of ordinary cleansing and care of nasopharynx and direct massage of the ossicular chain three times a week, each treatment lasting from five to thirty seconds, or until there was marked congestion of the vessels about the long process of the malleus. The ready congestion of the tissues immediately around the handle of the malleus, the writer believes, has much to do with the prognosis in a given case. After the third massage, the tinnitus, which had been greatly diminished in intensity by the previous treatments, ceased, and the hearing distance increased to an inch.

January 14, 1895, date of last visit, hearing distance had increased to four inches ($\frac{4}{25}$) and tinnitus had not returned.

Case II.—Allied to Case I, but of longer duration, is that of C. F. M., aged forty years; occupation, physician. Right ear chiefly involved; tinnitus and impaired hearing for five or more years; no pain; no discharge; no hereditary tendency. Auricle was found to be normal; slight squamous eczema of canal; drum membrane dull; no light reflex; scar tissue marked; movement of drum and malleus limited; short process prominent and long process foreshortened; ossicles firmly bound together and mucous membrane apparently thickened; Eustachian tube open, but not freely so; slight mucous rhonchi; watch heard on close contact; chronic hypertrophic nasopharyngitis and pharyngeal tonsils filled with leptothrix masses.

Treatment began March, 1894. Politzerization; use of Delstanche masseur; applications to the nasopharynx and squeezing out of the masses from the tonsils resulted in a decided improvement of the general condition, but no corresponding improvement in the symptoms most complained of.

Treatment was discontinued during the summer to be resumed early in December; conditions the same as before treatment, with the exception of the nasopharynx. Direct massage was immediately begun on patient's return, and treatment of nasopharynx continued. The lessening of the tinnitus began with the first massage, and at present writing, March, 1895, hearing distance for affected ear is two inches ($\frac{2}{25}$) and tinnitus can only be heard occasionally at night with the head resting on a pillow.

Case III.—A. M., aged twenty-nine years, began treatment February 4, 1895.

Complained of loss of hearing and tinnitus in both ears, more pronounced in right ear; duration, four years; has had an occasional furunculosis of both canals. Examination revealed a case of chronic catarrh of the middle ear. Watch heard on contact, A. D., and at an inch ($\frac{1}{25}$), A. S.

Patient has had massage of drum membrane twice a week regularly.

On March 14th, date of last record, watch was heard by A. S. at seven inches ($\frac{7}{25}$), A. D. two inches ($\frac{2}{25}$). Entirely free from tinnitus.

From the cases herewith reported, and from a large number now under treatment, both in private practice and at the clinic, the writer feels justified in the following conclusions:

That in the mechanical mobilization of the ossicles by vibratory massage we have an agent of undoubted value in chronic and subacute affections of the middle ear. That the therapeutic value of this method depends largely on the rapidity and amplitude of the vibrations.

That it is a safe method of treatment in all cases of impaired function due to some defect in the conducting apparatus. That it is of especial value in sclerosis and in atrophic conditions by virtue of its action in increasing the vascularity and hence the nutrition of the part.

That in hypertrophic otitis media this method is safer and to be preferred to the pneumatic method of Delstanche, which is unsafe and in many cases positively harmful.

That it is a method easy of application, causes little or no reaction, and is unattended with pain or discomfort to the patient.

Since writing the above, we have been especially fortunate in having obtained and read an article by so eminent an authority as Dr. P. Garnault,* who has devised and used an electric pressure sound similar in construction to the one described above.

In addition to massage through the external auditory canal, Dr. Garnault has employed rapid (six hundred to seven hundred per minute) vibrations through the Eustachian tube to the drum membrane, which he believes to be especially useful in certain labyrinthine diseases.

Garnault's results have been corroborative of those published by Lucae.

The value of rapid and mechanically accurate vibrations particularly emphasized by this writer.

179 Schermerhorn Street.

A CASE OF SKULL DEFORMITY FROM INHERITED SYPHILIS.†

By CHARLES E. NAMMACK, M. D.,
ATTENDING PHYSICIAN, NEW YORK HOSPITAL, OUT-PATIENT DEPARTMENT.

Ericsson W. D., a negro boy three years and a half old, was brought to the dispensary, April 14, 1895, on account of a peculiar deformity of the skull. The mother states that at his birth the womb was very slow to open, and the attending physician inserted a rubber bag to facilitate dilatation. The bag and child were expelled together. On washing the child for the first time, about the fourth day, she had noticed a swelling in the region of the anterior fontanelle, but had been assured that it would gradually disappear. Instead of doing so it has remained and grown harder. The child is bright, lively, and good-tempered. Examination shows an exostosis of the frontal bone, thickest at its superior angle of junction with the parietal bones, and extending downward with diminishing thickness over the external surface of the vertical portion of the frontal bone. Pressure on the growth produces no symptoms. The child's eyes are large and the eyeballs prominent. The diagnosis is between cephalæmatoma which has undergone ossification and hereditary syphilitic bony hypertrophy. It will be remembered that in cephalæmatoma the pericranium is elevated by extravasated blood, but does not lose its vitality, and begins to secrete from its under surface preparatory to the formation of bone. As the blood becomes absorbed, the cavity at length becomes obliterated, and there remains some thickening of that part of the cranium which corresponds with the site of the tumor (J. Lewis Smith, seventh edition, p. 117). The writer has seen this classical course followed in several cephalæmatomata, but never the amount of thickening left which exists in the present case.

In favor of hereditary syphilis, the mother's previous history offers some points. Her first pregnancy terminated at term in the birth of a dead child. Hæmorrhage preceded the birth, forceps were applied, and the dead child extracted. Her second pregnancy resulted in abortion at the second month. Our patient is the outcome of her third pregnancy. Another child has been born since and is apparently healthy.

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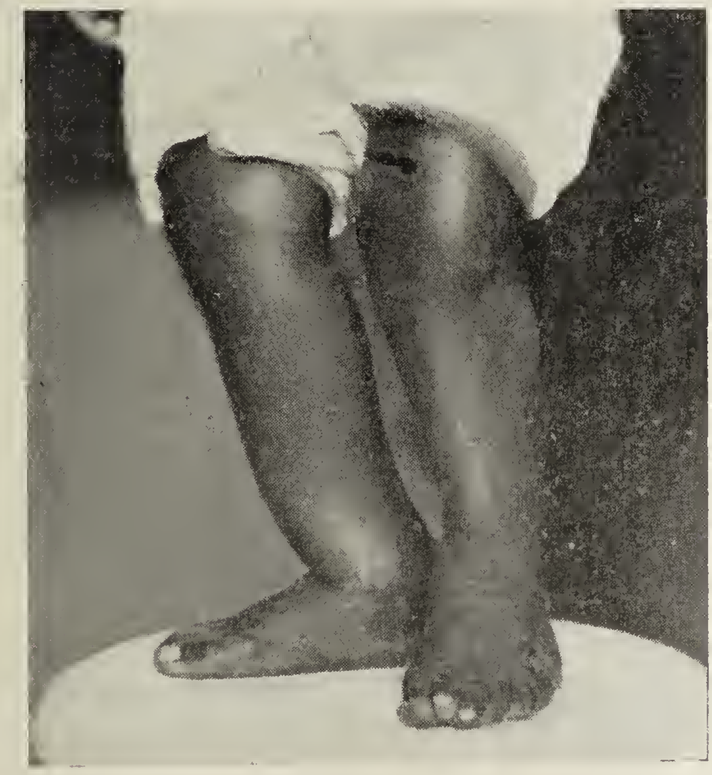
* La Massage vibratoire et électrique dans les affections de la gorge, des oreilles et du nez. *Société d'editeurs scientifiques*, Paris, 1894.

† Patient presented at meeting of Section in Pædiatrics, New York Academy of Medicine, May 9, 1895.

Fournier insists that the diagnosis of hereditary syphilis must be based almost exclusively on ocular evidence. (Editorial, *Medical Record*, August 26, 1893.) To Hutchinson's triad of symptoms—notched teeth, interstitial keratitis, and inflammation of the middle ear—must be added three other important evidences: First, a general appearance of persistent childhood, evidenced by low stature and slight frame; second, scars on skin and mucous membranes, presenting certain definite characteristics (*ibid.*); third, bony deformities, especially of the skull, face, and extremities, most notably of the tibia, which bone is large, thick, and misshapen, much widened and depressed in its central portion.

Our patient bears out a part, at least, of this description. The fact that the tumor was at first soft is not against its being syphilitic. According to Townsend (Morrow's *System of Genito-urinary Diseases*, vol. ii, p. 266), gummata, when affecting the exterior of the skull, appear at first as soft tumors, and subsequently become firm, as the bone cells beneath develop as the result of an osteoperiosteitis. Specific osteitis does not vary from non-specific, except in causation, and is in most cases primarily a rarefying osteitis, and when reparative processes take place there is a formative osteitis. This is most often seen in the skull, resulting in asymmetry (*ibid.*, p. 269). These exostoses are often spoken of as Parrot's nodes, and are very constantly found in the inherited form of the disease. Syphilitic bony lesions may appear very early, Parrot having reported cases of stillbirths where they were found, and they show no tendency to degeneration, according to Townsend, when the mother's infection antedated the birth by two years. The absence of headache, deafness, hemiplegia, or symptoms of meningitis in our case is explained by the fact that the external table is alone involved.



Our patient, then, presents the following objective evidences of inherited syphilis: Skull exostosis, flattened, sunken nose, double otitis media, notched teeth, and sword-blade tibiæ.

The case differs from cases of rhachitis in the following particulars: 1. The skull bone is thickened by new growth, rather than expanded and thinned, as in rhachitic craniotabes. 2. The shafts of the long bones are affected rather than the epiphyseal ends. 3. The crests of the tibiæ are enlarged and broadened, instead of being thinner than normal, as is usual in rhachitis. 4. There is no cachexia present. 5. Ordinary symptoms of rhachitis, such as prominent abdomen, beaded ribs, pseudo-paraplegia, and attacks of laryngismus stridulus, are absent. The tibial changes are well shown in the accompanying illustration.

No. 29 East Twenty-fourth Street.

SPECIALISM IN MEDICINE.*

By W. K. SIMPSON, M. D.,

FELLOW OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

The subject of the division of the practice of medicine into its various specialties is one that has claimed the attention of the profession for many years, having its long list of advocates and antagonists on either side, and it will, in all probability, remain a matter of argument for many years to come; but never before has the subject been so rife as at the present time, and never before has the profession been as unanimous toward the solution of the problem. As science and civilization advance, the matter of *simplification* becomes an all-important consideration, and we naturally see it creeping into every branch of human thought and labor, marking, as it were, the first great step toward true progress and advancement. Naturally, the first great law of simplification is a proper division into component parts, whereby minor details receive their due attention and a permanent structure is at last perfected.

Before entering upon the subject as it concerns our own, let us see how the principle applies to some of our kindred professions. Take that of the law, for example, and at the outset we meet with the two great divisions into criminal and civil practice, the latter being still further subdivided into numerous branches—for instance, patent, real estate, and railroad—each more or less separate from the other and requiring a different train of thought in its pursuit, but still all being dependent on the same fundamental laws of reasoning. Again, here is still even a higher division into the various courts—oyer and terminer, supreme, superior, common pleas, surrogate's, and the appellate court—each disposing of cases that come under its own *especial* jurisdiction. Perhaps there is no other profession where the line is so accurately drawn as in the *law*, and we can see at once what a simplifying effect these divisions possess, for without them litigation would be much more chaotic both for lawyers and clients.

This same principle applies (though possibly not in so strict a sense) to the profession of engineering, the chief divisions being the civil, mining, and mechanical, there being the same underlying principles in each, though the practical application may differ very widely one from the other.

Turning our attention to mercantile pursuits of any magnitude, we see this same law of division enacted.

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* Read before the Hospital Graduates' Club, January, 1895.

In manufacture, we see artisans spending their whole life of toil on some *one* special portion of work, being ignorant, perhaps, of the other branches.

The various departments of the government, national and otherwise, show to a marked degree the efficacy and *necessity* of this same division. The minuteness of the postal service, for instance, is a most striking example.

In the domain of art we notice the same principle. The artist and sculptor gain their reputation by confining their abilities to one special fancy. The perfect portrait painter and landscape painter are seldom combined in the one person; the beautiful marines and interiors are by different artists, and this concentration of ability is so often marked that it is often a matter of ease to detect at a glance the individuality of certain artists.

In this instance the division into special work is, perhaps, more of a *natural* division, being a cultivation of a *peculiar* fitness or bent of mind. Still, it shows the point we are after, that perfection is more readily gained by pursuing one definite line of action.

The pursuit of the sciences in their varied and vast domain is another instance of the value of special research. We have the astronomer, naturalist, chemist, physiologist, each in his own sphere, affording a grand opportunity for a life's devotion.

Education, in its numerous phases, shows the necessity for special training and application. And so we could go on multiplying examples to infinity, showing that whatever calling we may pursue in which a certain degree of perfection is to be reached, a proper consideration of and devotion to its special branches is *absolutely necessary.*

Having thus seen, to a certain extent, the application to and necessity of specialism in other branches of human endeavor, the question naturally arises, Does it not apply with equal or if not more force to the medical profession?—a question easily asked, but possibly not so easily answered. When we come to compare our profession in this respect with other callings, we at once find many obstacles in the way which seemingly render such a comparison a matter of difficulty. Principal among these, and upon which all other objections more or less depend, is that the practice of medicine is not an *exact* science. We can not proceed with mathematical accuracy. There is no court of appeals, save the autopsy table—and how often that reveals the fallacy and error of previous theory! No set of laws govern all cases; there are personal idiosyncrasies; many phenomena of disease are shrouded in mystery. The same disease attacks different persons in different ways. Unforeseen complications are constantly arising; theory and speculation naturally form the basis of many of our conclusions, so that we often flounder in a sea of uncertainty. Again, we must remember that we are dealing with the manifold changes of the *human body*—a complex organism, not made up of component parts that admit of entire isolation, but rather a structure, the various portions of which, nourished by the same medium, must act in perfect harmony with each other for the proper maintenance of life, the overthrow of one organ or function generally carrying disaster to some other on which it may depend, or perhaps throwing the whole system into a state of disease and ultimately causing death. Our daily practice is full of such illustrations; sufficient for the purpose may be found in the relations which the circulatory and nervous systems bear to each other and to the whole economy—*e. g.*, a piece of vegetation leaving the heart produces death by cerebral embolism; interference with return circulation produces distant œdema; arrest of arterial circulation produces gangrene; reflex disturbances are so abundant that at times it is hard to know where to seek the source of trouble; and how much is included in that great term *hysteria!* A due consideration of these facts in all their bearings will present some of the difficulties to be encountered in reducing our profession to a system of exact specialties.

Seemingly strong, however, as these objections may at first appear, there is, no doubt, a very positive affirmative side of the question. Medicine, as a *science pure* and *simple*, naturally divides itself into specialties; but it is in their application to our daily practice that we as physicians have to consider them.

The rapid advances that have been made and are still being made in our profession have caused it to assume such gigantic proportions that one can not expect to be master of the whole science, and any attempt or boast to that effect meets with just ridicule by more modest men. We are all daily meeting with cases which, owing to our lack of special knowledge, the possession of proper apparatus, or the *time* and facilities for proper treatment, we are unable to justly care for, and there remains no other alternative than to seek the aid of some one who is better fitted to treat the case. The patient's welfare should claim our first attention, and no one knows better than the physician himself whether or not he is doing his duty to his patient. Far better for a practitioner to send a patient for additional advice of his own accord than to have a patient seek the specialist himself after a term of misguided treatment; the first creates a mutual holding of confidence between physician and patient, and I might add, in passing, that the reference of a patient to a specialist entails on the latter a trust of honor that can not be too strongly guarded. It is, perhaps, this breach of confidence that in some instances has brought odium on the practice of specialties.

It is often the experience of specialists to correct the errors and oversights of the general practitioner. The endeavor to do all we can for our patients is commendable, but to keep them out of the hands of specialists on the score of prejudice savors somewhat of deception. That one can arrive at a greater degree of perfection in the concentration of his medical knowledge than in trying to absorb the whole subject no one will deny; that reputations may be made quicker is also an equally undeniable fact. The chances for brilliant successes are much greater in specialties, and the wear and tear attending a physician's life is certainly lessened. The practice of medicine is fast losing its sentimentalism, and the public at large is becoming a potent factor in its influence on the profession—their demands can not be ignored. People of the present time, in many instances, determine themselves as to about what their ailments are, and look about them to find out who is best fitted for their individual case, and naturally go to a specialist. We can not deny them their right of choice, and I am sure we can not stop them. This in a measure regulates the supply and demand, and as long as the laity clamor for specialists they are sure to exist.

The present drift of medical *research* tends to specialism; we see this strongly instanced in the division of societies, academies, and congresses into separate sections.

Medical journalism abounds in publications devoted to special subjects. Health boards demand specialists. Matters requiring expert testimony surely call for specialists, and the medical educator must needs be a specialist. In return, it is needless to say that the specialist himself should be a man of broad medical views and thorough training in general medicine, for in the pursuit of no one specialty can we lay aside the laws of differentiation and the relation that one morbid action bears to another. True *specialism is a limitation of work rather than a limitation of knowledge*, and any one entering it without proper preparation will soon find the limitations of his action.

Routinism is an objection raised against specialism, but I think we find just as much of it in the humdrum and weariness of general practice. The careful specialist is ever on the alert for new ideas and methods, and there yet remains to be found the specialty which has been mastered.

The eagerness to bring all cases of disease under the specialty in which the physician is interested is another objection offered; this will only happen to the blind and narrow enthusiast, who is a danger to be feared in any sphere.

After having considered the evident present tendency toward specialism, it might be well to consider the debt that the profession owes it. The relief from former ignorance and chaos has been the result of men devoting themselves to special work. The microscope and pathology are brilliant examples. Special surgery has allowed the exploration of regions of the body with impunity which in former times were closed to all knowledge, yielding results which seem but little removed from the miraculous. Look at it as we may, specialism is a natural culmination of the advancements made in the science and practice of medicine, and, as a result, gynæcology, ophthalmology, neurology, orthopædics, laryngology, otology, dermatology, and many others have reared domains of their own which are far from being circumscribed; and it has not been the work of narrow-minded men, but men of broad minds and actions that have put specialism on a sure foundation and doubtless have made it the practice of the future.

952 Lexington Avenue.

The Value of Diphtheria Antitoxine Serum.—At the recent meeting of the American Pædiatric Society, held at Hot Springs, Va., it was resolved that in the opinion of the society the evidence thus far produced regarding the effects of diphtheria antitoxine serum justified its further and extensive trial.

The Louisville, Ky., Academy of Medicine.—At the last meeting, held on Monday, the 3d inst., the subject for discussion was The Milk Supply of Cities.

THE PROGNOSIS IN NASAL OPERATIONS
PERFORMED DURING
EPIDEMICS OF *LA GRIPPE* AND OF ALLIED CONDITIONS.*

By D. BRYSON DELAVAN, M. D.

The ultimate success of any surgical operation will depend, as every one knows, upon the conditions of the patient, local and general, which existed at the time the operation was performed; thus, an organ which is in a state of violent inflammation would be allowed by the operator to assume a somewhat normal condition before he would attempt to interfere with it, unless the circumstances requiring operation were of decided urgency. The more highly organized the organ, the greater the activity of its circulation, the more intimate its association with other organs of an especially important character, the more abundant its lymphatic supply, and, finally, its comparative inaccessibility, the greater would be the hesitancy in interfering with it under adverse circumstances.

As trite as are these statements, it has seemed not unfitting to the writer to call attention to certain aspects of nasal surgery with which we are frequently confronted, and which, it has seemed, have failed to receive due attention. Perhaps this matter has been brought to the notice of the writer in great measure through the fact that cases have so often been referred to him by other practitioners, with a request that he would operate and at once, when he has been conscious of the fact that, however safe in general the proposed procedure might be, the special conditions obtaining were such as, for the time being, to interdict surgery altogether.

The views herewith expressed upon this subject have been purchased at the expense of several involuntary but costly experiments gained during epidemics of *grippe* which have prevailed during the last few years, and the lessons learned from them have been so clear and decisive that I do not hesitate to communicate them. I am almost ready to advance as a dictum the proposition that during epidemics of *grippe*, surgically speaking, the nose should be let absolutely alone. In the first place, it will be noticed that when the *grippe* prevails, any operation upon the nose is apt to be followed by an acute attack of influenza, and this in spite of the fact that up to the time of the operation the patient may have shown no signs of any such trouble.

Operations upon the nose of any considerable severity are very sure to be followed by a certain amount of general depression, and, while this is not invariably the case, it is not too much to state that it is the rule.

Again, as the result of the operation, there is a necessary amount of local irritation, and, finally, that possibly complicating feature, an open wound. All of these things directly tend to invite an attack of the *grippe*. The possibilities of such an attack, moreover, are added to by the fact that during such epidemics large numbers of persons are affected, and a patient about to be operated upon may have been already exposed and about to develop an attack which, at the time of the operation, has not clearly manifested itself. Whatever may have been the real cause of the matter, and however blameless the surgeon in producing it, it is safe to say that, where such complications supervene, few patients will have either the intelligence or the common sense to refrain from accusing the physician of having been directly responsible for their sufferings.

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* Read before the Hospital Graduates' Club, April 25, 1895.

Secondly, the results of such an attack in a patient who has suffered even the slightest injury to the nose through operation are apt to be disastrous.

First, with regard to the present condition of the patient. The attack of influenza will probably induce a condition of violent irritation in and about the injured parts. Swelling is intense, so that not only is the wound undoubtedly congested, irritated, and compressed, but the secretions are retained, drainage is interfered with, and the possibilities of local treatment, so necessary in the after-care of such cases, are practically abolished. With such difficulties to contend with, it needs no argument to prove that recovery will be greatly retarded, and a wound which, under ordinary circumstances, should have healed in a comparatively short time, will remain open, perhaps indefinitely. Lengthened recovery in such cases is one of the most unfortunate accidents that could occur, not only with regard to the comfort of the patient, but also in view of the ultimate success of the operation, for, as is well known, the quicker the healing process, the less liability there is to the formation of objectionable cicatricial tissue, adhesions, and other complicating results; indeed, skill in operating would almost seem of secondary importance to the proper after-care of the case.

As a rule, these nasal operations do not require urgent haste. In most instances the patients have suffered from nasal obstruction for a greater or less length of time, and the conditions are such that a few weeks of waiting would not be likely to involve any serious injury. It would be better not to operate at all in some cases, rather than to involve the patient in the unnecessary suffering and the final disappointment which may follow from lack of judgment in the selection of a proper time.

If it is wrong to risk an operation during the prevalence of *grippe*, what shall be said of the lack of judgment which permits one while the patient is in the midst of an attack? The records of neurasthenia would probably furnish an emphatic reply.

Fortunately, the season of influenza is practically past, but there is another which is about to appear—namely, that of hay fever. Unnecessary as it should be to say so, it still seems desirable to warn against the surgical treatment of this disease during the summer months. All that has been said with regard to influenza is true of hay fever. Any operations done in such cases should be performed long enough before the expected attack to enable the parts to have fully healed, and, if possible, to have resumed as nearly as may be a normal condition. The same results which follow operation upon a patient who becomes the victim of *grippe* will follow, under similar conditions, in hay fever. Discretion in these matters, even though it may occasion the loss of an operation now and then, will certainly in the end result to the advantage of all concerned.

1 EAST THIRTY-THIRD STREET.

EPHEDRIN-HOMATROPINE,

THE NEW MYDRIATIC.

A REVIEW OF THE WORK OF DR. GROENOUW AND DR. GEPPERT.

By GEORGE F. SUKER, M. D.,
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THOUGH a long-continued mydriasis is of great therapeutical value in many cases, it is nevertheless very inconvenient if a mydriasis is wanted only for diagnostic purposes. An ideal mydriatic for diagnostic purposes would be one that would produce a maximum pupillary dilatation with the minimum disturbance of vision. Cocaine and homatropine produce a rapid as well as a maximum dilatation; their effects, however, continue too long, often taking twenty-four to thirty hours before the same are worn off. Now this ephedrin-homatropine solution seems to fulfill the requirements as far as an ideal diagnostic mydriatic is concerned. It produces a rather rapid dilatation, though not maximal, and its effects pass off within an hour or two.

Professor Geppert has experimentally proved this on several animals, of which experiments the following is a *résumé:* A ten-per-cent. solution of ephedrin when instilled into the conjunctival sac of a rabbit produces within one half to one hour a moderate dilatation of the pupil. In diffused daylight the pupil is as large as the one resulting from atropine. On being exposed to a bright light the pupil contracts to about four to five millimetres; while the one to which the ephedrin has not been applied contracts down to one to two millimetres in diameter. If the ephedrin is instilled directly into the anterior chamber the mydriasis follows within a few moments. The maximum dilatation lasts only about half an hour; from then on the effect gradually wears off, and within a few hours entirely disappears. There is no apparent action when the ephedrin is applied to cats' eyes; in dogs it acts irregularly, in so far as it sometimes produces an early dilatation, and, on the other hand, sometimes requires several hours.

The effect of ephedrin is greatly increased by the addition of a small quantity of homatropine—*e. g.*, a ten-per-cent. solution of ephedrin to which has been added 0·1-per-cent. solution of homatropine is more powerful than the ephedrin solution itself. In all cases in which this ephedrin-homatropine solution has been instilled there was a greater dilatation than in the simple, and the effects pass off as rapidly as from the ephedrin itself.

The following formula gives the proportion in which it has been extensively used both for experimental and clinical purposes:

Ephedrin hydrochlor................	1·00
Homatropine hydrochlor...........	0·01
Aq. dist...........................	10·00

This solution is perfectly clear and colorless. If applied to the eyes of a patient it may possibly produce a slight smarting similar to the homatropine irritation, yet in the majority of cases no such complaint is made. In one hundred cases no irritation or untoward effect of any kind was noticed.

The ephedrin-homatropine solution does not influence the accommodation in the least, for in each case the near point remained normal, as was determined by the reading of very small test type. Though the mydriatic action is quite rapid and powerful, still the pupil never entirely fails to react toward light.

After a single application of this combined solution to the eye the pupil begins to dilate on an average within eight minutes and a half (varying from six to thirteen minutes), and attains its maximum dilatation within half an hour; the average being thirty-four minutes, varying from twenty-three to forty minutes. Within an hour after the application the pupil slowly begins to contract, and after the lapse of from four to six hours has again attained its normal size. The greatest dilatation continues for about half an hour, varying from fifteen to forty-five minutes, the average being twenty-nine minutes. At the maximum dilatation the pupillary diameter measures from five to six millimetres (average, 4·5 to seven millimetres), which is sufficiently large for diagnostic purposes. The three following figures show the action of the two mydriatics, homatropine and ephedrin.

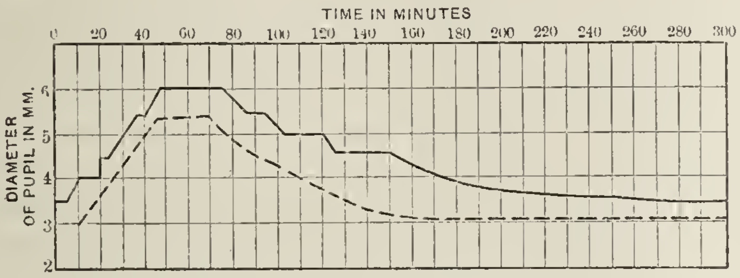

Fig. 1.—Ephedrin, ten per cent.; homatropine, one per cent. ———, curve of a special case; ----, average curve.

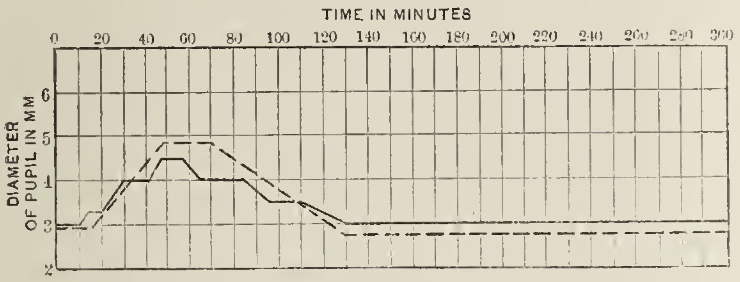

Fig. 2.—Ephedrin, ten per cent.

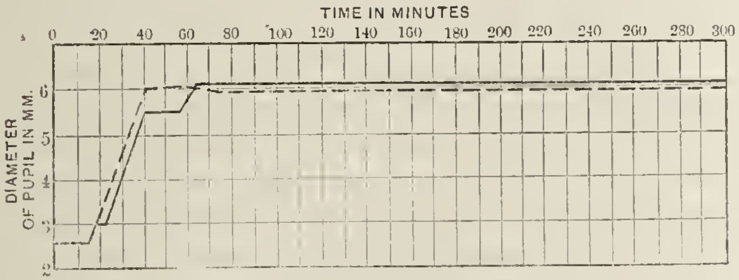

Fig. 3.—Homatropine, one per cent.

The diameter of the pupil was taken in each case as strong light fell upon the macula lutea. If the light impinges upon more or less peripheral parts of the retina and not upon the macula lutea, the diameter of the pupil reaches as high as nine millimetres, and sometimes even more. The effects of the ephedrin were considered as passed off when, upon the egress of rather intense light, the pupil contracted down to its normal size. Certain it is that even when the eye was subjected to a very moderate light the pupil was a trifle larger than an eye not treated with the above-given solution. For this reason the period of time which it takes for the effects to entirely wear off vary considerably. For instance, de Vriere found a return to the normal width all the way in from five to six hours; Groenouw, as early as four hours after the instillation of a ten-per-cent. ephedrin solution.

In the use of a solution of five per cent. ephedrin and 0·05 per cent. homatropine this action was much slower, and caused no irritation, as sometimes the stronger solutions do. With this strength the pupil began to dilate as early as with a ten-per-cent. solution—*i. e.*, eight minutes and a half after the first application—and a full mydriasis was obtained within forty minutes. The return to the normal width began a trifle sooner, usually after fifty-six minutes, while the entire influence had passed off after a lapse of three hours and a half. The maximum dilatation continued for twenty minutes, and this dilatation is as great, as experiments have shown, as that resulting from the use of a ten-per-cent. solution.

In the use of a one-per-cent. homatropine solution the mydriasis takes place much later than by the use of the combined solution—*i. e.*, fourteen minutes—and attains its maximum much later, and continues for about twenty-four hours. This is obvious from Fig. 3.

The ten-per-cent. solution of ephedrin does not show any marked difference from the combined solution—*i. e.*, no difference with reference to the beginning of mydriasis, its maximum point, and the time necessary for the return to a normal condition. The greatest difference between the two solutions exists in maximum dilatation. By the use of the combined solution the pupil is dilated from one to two millimetres more than by the ephedrin solution; hence the mydriatic power of the ephedrin is greatly increased by a trifle of homatropine. Then, too, the combined solution of ephedrin and homatropine does not deteriorate as rapidly as homatropine, a solution of the former three months old showing no sign of loss of action.

Figs. 1 to 3 show a few typical curves of the action of the various solutions—ephedrin, ten per cent., homatropine, 0·1 per cent.; of each solution three drops were instilled. The rather irregular curves result from the inability to exactly measure the pupil diameter, and are not to be ascribed to the action of the drugs.

The curve for the ephedrin-homatropine solution is rather rapid in rising, a somewhat short climax, and a gradual decrease to the normal. The curve for the ephedrin is similar to the above, with the exception of not attaining so high a climax. The curve for the homatropine begins to rise somewhat later, but in a similar manner, while the combined solution reaches a trifle higher point and remains there for a longer period of time.

From the above remarks it can be seen that we possess in the ephedrin-homatropine solution practically an ideal mydriatic for diagnostic purposes, being rapid in its action, sufficiently intense, and of very short duration.*

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* Merck prepares this solution under the name of "mydrin."

A CASE OF PEMPHIGUS PRURIGINOSUS.

By R. S. DUBS, M. D.,

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In the *New York Medical Journal* of January 5, 1895, I reported upon a case of chronic hæmorrhagic pemphigus. The patient, whom I have quite recently seen, is enjoying good health, has fully regained his former body weight, but is troubled, however, with the occasional appearance of eruptions. These invariably pass away quickly, it being usually enough to remove the uplifted part of the epidermis, the remaining part being sufficient to prevent further exudation. A few weeks after the appearance of my communication I was called in to the case to be described. As in the former case, so here, the patient had been in the hands of a number of physicians successively.

History.—The patient, Mrs. H. S., is a very corpulent lady of seventy-one years. Both her parents lived to be seventy years old, her father dying of "asthma complicated with dropsy," her mother from the "effects of overlifting." She had eight brothers and sisters, three of whom died in infancy, one at the age of three months of "convulsions," another at the age of eleven months from injuries incurred by a fall, the other at the age of three years, the cause given being "a fright." Three sisters and two brothers are living and enjoying fair health, the eldest being seventy-eight years of age. The patient herself was born in July, 1823. Her past history she gives as follows: When eleven years old she had typhoid fever. At eighteen years she first menstruated. When nineteen she suffered several months from a "digestive trouble." She married when twenty-two. From her thirtieth to her fiftieth year she suffered from frequent attacks of backache and headache. When forty years old she says she had typhoid fever again, from which she recovered very slowly. At fifty-one years she suffered several months from the effects of a "sunstroke." Since that time she has enjoyed good health until last summer (1894), when her present trouble began. Of her eight children six are living, one having died at the age of eleven years of typhoid fever and one daughter at thirty-six years of "puerperal fever." She has had no miscarriage or premature births. The six children who remain are all married and have families. With the exception of one lady who suffers greatly from rheumatism, they are quite healthy in appearance.

From this history we can glean nothing which could throw light upon the present disease. It is perhaps worthy of note that her digestive tract was most frequently the part affected by disease, and, in fact, she says that for the last ten or twelve years she has been troubled with "pyrosis" almost constantly.

Her present disease she describes as follows: In July, 1894, she noticed a frequent appearance of eruptions just like "mosquito bites" upon the inner sides of her wrists. These never remained longer than one or two days, when they would disappear; but while there they itched intensely, the sensation being often more like "burning." At their appearance the forearm would feel hotter than usual and the region of the wrists would be reddened and slightly swollen. In November these eruptions, which till then had appeared upon the forearm only, suddenly appeared upon the inner side of the thighs also, the symptoms being precisely the same as when upon the wrists. Early in December, in addition to these eruptions upon the wrists and thighs, an intensely itching rash, much like "measles" in appearance, spread over the abdomen and back. About two weeks later, the middle of December, the limbs about the knees, her breasts, and her upper arms near the shoulders began to swell, the skin of these parts assuming a red, glossy color, but being interspersed here and there with lighter spots. One afternoon, toward the latter part of December, she was suddenly taken with chills and fever and forced to take to her bed. In that night there appeared a great number of large watery blisters about the size of a silver dollar upon the upper arms and about the ankles on the lower limbs. In the course of a week the blisters spread over the whole body, several frequently uniting so as to form one, so that in some places spaces about the dimensions of the palm of the hand were covered by one such large blister. This state of affairs continued until I took the case.

To recapitulate shortly: From July, an oft-recurring papulous eruption on the flexor sides of the forearms; in November, a like eruption upon the thighs; in the beginning of December it spread over the greater part of the body; toward the end of this month, with chills and fever, a bullous eruption on the limbs which rapidly extended over the whole body.

Status Præsens.—Patient is somewhat below the medium height, has well-developed muscles and a great superabundance of adipose tissue. She lies upon her back with the head and chest somewhat elevated and her arms and legs distended. She has a restless, frightened look, one betraying suffering and pain. The face is slightly flushed, rounded, and full. The pulse is accelerated, regular, moderately strong, but small. The breathing is faster and more superficial than is normal. The marked symptoms are the swollen, reddened skin and the eruptions presently to be described. The temperature is slightly increased only, the percussion boundaries of the heart are not beyond the normal, its tones clear and distinct. The lungs are also in a normal condition. With the exception of frequent ructus and pyrosis there is no disturbance of the digestive tract. The urine is decreased in quantity, about twelve hundred cubic centimetres, highly colored, clear, 1·024 specific gravity, of acid reaction. There is a small amount of albumin present. Urobilin and bile pigment tests are negative. The indican reaction, however, is very marked. By adding to the urine an equal amount of hydrochloric acid, then a few drops of a freshly prepared solution of chlorinated lime and shaking, indigo blue is precipitated in flakes. The reflexes are all quite normal, and save the excited state of the patient there are no symptoms on the part of the nervous system. This continual irritation no doubt will explain the accelerated pulse and rate of breathing.

On the right arm the skin was infiltrated (swollen), red, glossy, and hot to the touch. The swelling was not uniform throughout, but there were interspersed many areas of apparently healthy skin, the niveau of the affected parts being fully five millimetres above that of the healthy skin. Upon the dorsum of the hand were some half a dozen flaccid bullæ about the size of a nickel five-cent piece The palm of the hand was free from any eruption. On the forearm were many bullæ, some larger than those on the dorsum manus, especially those on the flexor side. The skin in the region of the elbow was uniformly reddened, swollen, shining, and under quite a tension, there being few eruptions here. On the upper arm near the shoulder were the largest bullæ, they being fully twice the size of a silver dollar and from three to four centimetres high, though half distended with fluid only. Wherever these eruptions had burst or been opened there would be found shriveled epidermis and dried exudate, which together gave the appearance of large, rough scabs. This was especially the condition upon the flexor side of the forearm. The contents of the eruptions were somewhat changed after a time; at first a clear, light-yellow-colored fluid, later, if not opened, a sort of gelatinous substance, which could often be separated into layers. If the clear fluid of a fresh bulla was caught up it invariably clotted. The swollen skin, the large number of bullous eruptions, the partially adherent scabs, all united to make every movement painful (which was doubtlessly increased by the impressions the patient received through the optic nerve). The left arm presented a similar appearance to the right. The lower limbs were most severely affected below the ankles, the dorsum of the left foot being taken up by one large bulla. The trunk presented a more uniform redness than did the limbs. From the umbilicus to the ensiform process, and laterally to the posterior axillary lines, was a space of healthy skin which was separated from the diseased surroundings by a distinct, elevated, reddened wall. Some parts of the abdomen presented the appearance of an urticaria gyrata, there being so many islets of healthy skin scattered through the diseased parts. Sparsely scattered over the trunk were bullæ varying in size from that of a five-cent piece to half a dollar. In the mouth, nose, ear, vagina, or rectum I could discover no eruptions nor see any signs of the same (infiltration, etc.). When the patient's age is taken into consideration, the extent to which the disease had spread—the whole body, save the face and neck, the palms of the hands, and feet being affected—it is quite easy to picture the patient's nervous condition. In truth, for the first week of treatment this needed the most careful attention.

Treatment.—It was essentially that described in my former article (*vide New York Medical Journal*, No. 1, 1895). To insure a more rapid effect, arsenic was at first administered hypodermically—the sodium salt of arsenious acid—later, the Asiatic pills being used. In this case I gave larger doses, too; at the height of the treatment, 0·04 gramme a day. Externally the present treatment varied in no respect from that in the former case till later on in the sickness. The disordered stomach readily yielded to a carefully directed treatment with such simple remedies as hydrochloric acid and pepsin. As the dose of arsenic increased, the indican reaction in the urine got weaker, finally to disappear, doubtless due to the antiseptic properties of arsenic.

Fourteen days sufficed to cause the exudation in the skin to disappear; in this time all the redness and swelling above described had passed away. This took place gradually, at night these symptoms always being most marked. After the treatment was well under way the evening exacerbation was always less than on the previous day, until it had wholly disappeared. With few exceptions, the places denuded of their epidermis (some in part, others wholly) rapidly healed. The extensor side of the leg, over the tibia, and the flexor side of the forearm, over the tendons, caused some trouble. No sooner had the several eruptions disappeared when new ones would appear; but a patient repetition of the external treatment conquered. I should like to lay stress upon the necessity of promptly removing the whole of the uplifted epidermis as soon as a bulla arises. If this is not done it causes the patient great pain, and the parts beneath macerate until the whole cutis is destroyed—*e. g.*, upon the dorsum of the left foot upon removing the larger eruption above mentioned, and the jellylike mass which is always found in those of longer standing, the extensor hallucis longus tendon was exposed for the distance of an inch or more.

This case varied in some respects from the former. After the eruptions had disappeared and the skin regained its pliability there occurred frequent eruptions of herpes. I noticed such in the region of the cutaneous branch of the right obturator nerve, on either side of the thorax and abdomen, in the district of the lumbar intercostal nerves especially, and once in the region of the left axillary nerve. It was, with few exceptions, an abortive zoster, a papulous eruption merely, vesicles not being formed. The sensation was described as one of prickling and burning, and was best relieved by the free application of cool, moist cloths covered with a layer of impermeable material. Herpetic eruptions have been described as due to arsenic; whether that was the case here I could not say, deeming it better not to discontinue its use, seeing the disturbance was of short duration (one to three days only in the various cases) and the ascribed cause quite problematical. Similar outbreaks have appeared seven weeks after all treatment with arsenic had ceased.

Long after the rest of the skin was in a nearly normal condition there remained at the roots of the phalanges on the dorsum of the hands and on the dorsum of the feet small, hard, slightly reddened, intensely itching—exacerbating nights—knots in the skin. Sarcoptes scabiei was searched for in vain, though they disappeared in a week's time on the application of unguentum cinereum.

Again, at times there would suddenly appear on the flexor sides of the forearm an eruption of dark red, circumscribed, slightly elevated "papules." When this took place the forearm would first swell some and the skin on the affected side become red, hot, and slightly œdematous, which symptoms always preceded such an outbreak by six or twelve hours. The appearance of these eruptions, as well as their size—from two to five millimetres in diameter—were quite different from the herpes above mentioned. They never extended into the upper layer of the epidermis, for this as a slightly shriveled layer passed directly over them, and could frequently be removed in small sheets without affecting either them or the skin between them. Then, too, they remained longer and withstood almost every remedy. Resorcin gave the best results, but I would warn against its use in a too concentrated form.

Upon the forearms and upon the abdomen—parts which had been more severely affected—I noticed a profuse eruption of "milia." They caused none but a cosmetic disturbance. In size about as large as a pinhead and situated *in the epidermis*, the superficial layer passing intact over them, they could easily be removed with a pin or needle without causing pain or any flow of blood.

Pemphigus is characterized by the continuous appearance of bullæ upon the skin and mucous membranes. It is, in the full sense of the word, a chronic disease, an acute eruption of bullæ, such as at times is seen upon the basis of an eczema, etc., being more fittingly termed *dermatitis bullosa.* Pemphigus may begin acute, but its chronic character is ere long discovered. According to the most marked symptoms it has become customary to classify the cases of this disease. We speak of *pemphigus vulgaris* when there is a continued eruption of bullæ upon a normal or reddened skin. Should the contents of these eruptions, instead of being light yellow in color and clear, contain blood, we call it *pemphigus hæmorrhagicus.* In those cases where, after the bulla has burst and the scab, consisting of shriveled epidermis and exudate, has fallen off, a new scab is continually formed—partly dried-up exudate, partly dead epidermis, this being kept up upon the site of the bulla—we speak of *pemphigus foliaceus.* Should the sites of the bullæ become the seat of a rapid granulating growth, it is termed *pemphigus vegetans.* When the bullæ appear upon an urticaria eruption which causes intense itching, we speak of *pemphigus pruriginosus.* The case above described would, according to its symptomatology, be put under the last head.

Having twice tested the above-given treatment for pemphigus, and with the best of success in each case, I can warmly recommend the same. Though my method of treatment be somewhat cumbersome, still it gives ample returns in that the patient is soon to a great degree relieved of pain, and in that the progress of the disease is restricted and the existing eruptions caused to disappear.

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TETANY:

WITH THE REPORT OF A TYPICAL CASE.*

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If, along with the name, we accept the description of tetany given by Trousseau, Dance, Corvisart, Steinheim, and other writers of fifty years ago, then it is a very rare disease. Of late years it has been the tendency to include under the head of tetany many different varieties of muscular spasm. It would seem best either to restrict the term tetany to cases presenting the classic symptoms or to discard the name altogether and class all cases presenting such symptoms under the general term of muscular spasms of unknown origin. While this affection is not uncommon on the continent of Europe, it is rare in England, and apparently still more rare in this country. The disease, if we may call it a disease, may appear at any age, but is far more frequently seen in childhood and youth. Apart from the tetany of lactation, the true disease is very rarely met with in the adult. The classic symptoms are too well known to require any detailed description. Sometimes there are slight prodromal symptoms, such as numbness or tingling in the extremities, with some slight disturbance of motion. Then comes the tonic convulsion, which begins usually in the upper extremities. The thumb is strongly adducted; the fingers are pressed closely together and semiflexed over the thumb; the hand becomes conical in shape, assuming the form called by Trousseau the "accoucheur's hand." The wrist is next involved, being turned in. The forearm may be slightly flexed upon the arm. In the lower extremities the toes are bent toward the sole, the great toe being turned under the others, and the sole of the foot hollowed out. The heel is pulled up, the leg and thigh being in a state of extension. The muscles are firmly contracted and resist efforts to overcome the contraction. The above is in brief the description given by Trousseau.

Occasionally the lower limbs may be involved first, or one side may be chiefly affected. In severe cases the contraction may involve other muscles, the diaphragm, œsophagus, larynx, muscles of the back and neck, producing opisthotonus, and very rarely the facial muscles may be affected. The attack generally lasts but a few minutes, relaxation comes on, and there are no symptoms during the interparoxysmal state. In some cases the tonic spasm may continue for hours or days, though it is doubtful whether these cases should be called tetany. The attacks recur with greater or less frequency for months or even years. The frequency of the attacks varies very much; in some cases they occur only three or four times daily, in others every few minutes. The following case conforms almost perfectly to the classic descriptions of tetany:

The patient, a girl of three years and a half, was referred to me by Dr. George Strauss. The family history was perfectly good, and the child had always been healthy. There was not the slightest evidence of rickets. Physical examination was negative, and the child seemed very intelligent. When she was one year of age, or two years before I saw her, she had the first attack. There would be months in which she was perfectly well, and then the attacks would come on for no apparent reason. While in my office she had an attack, beginning almost simultaneously in hands and feet. Her hands assumed the typical form described above—wrist and elbow slightly flexed. The legs were extended, heels raised, and feet slightly inverted. Upon inquiry during the attack she said she had no pain, and except for the fact that she had to stop her play her father said she did not seem to mind the attacks. There was no involvement of the facial or other muscles. After a few moments of tonic contraction the attack passed off. At the time when I saw the patient she was having from ten to fifteen attacks daily. There was no anæsthesia and the reflexes were unaltered. Pressure upon the inner side of the arm or at the bend of the elbow would bring on an attack.

This I take to be a typical case of tetany, and I would be inclined to restrict the name to cases presenting in general such symptoms. So many different affections have been called tetany that it is difficult to arrive at any definite knowledge as to the frequency of the disorder. Griffith has collected all the American cases up to 1894, in number seventy-two. A cursory glance at these cases, as he has abstracted them, will show that many of them do not belong under the name of tetany. In this list are what would seem to be meningitis, trauma, hysteria, and simple muscular cramps. Thus it will be seen that tetany is a very uncommon affection in this country, although it is not rare on the continent.

Among the symptoms of tetany may be noted a curious increase of electric excitability; this is so marked that an anodal opening tetanus can be obtained. Chvostek has called attention to the fact that pressure over the facial nerve at its exit from the foramen will produce contraction of the facial muscles. The question has been raised but never definitely settled as to whether the Trousseau sign is produced by pressure on the artery or the nerve. The altered electrical reaction would rather point to the latter as the most probable factor.

The two interesting questions concerning tetany are, first, whether it is a sufficiently distinct affection to be separated from the many other forms of muscular spasm, and, second, what is its probable cause? In regard to the first of these questions it may be said that so long as our knowledge of the nature of the disease is so uncertain it is best to hold to the clinical differentiation. The symptoms of such a case as the one related are certainly sufficiently distinct to give it at least a clinical place.

With our present knowledge of tetany it is impossible to do more than speculate as to its cause. The symptoms point to the spinal cord as the seat of the disease rather than the brain.

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* Read before the Medical and Chirurgical Faculty of Maryland, April, 1895.

The four extremities are practically always involved, and when this is not the case the two upper extremities are affected. Tetany involving one side is very rarely if ever met with. Both motor and sensory nerve elements are involved, and decided trophic symptoms have been noted. A curious fact is the occurrence of tetany after the removal of the thyreoid gland, Wolfler having noted it seven times in seventy operations. In this connection it might be noted that both in tetany and Basedow's disease the electric excitability is greatly exaggerated.

Of the many causes to which the disease has been attributed, the most important seem to be diarrhœa and exhausting diseases generally, and in adults lactation and exposure to cold and wet. The theory that all cases are rhachitic is not borne out by observation. The causes above mentioned are just the ones that *a priori* we would expect to affect the nerve cells, perhaps using up their protoplasm. Again, the recovery from the disease may be rapid or, on the other hand, very slow, which, according to this theory, would mean that the protoplasm of the spinal nerve cells was only slightly or very markedly involved, these latter cases giving rise to nutritive disturbances. The autopsies that have been made by Trousseau and others are of no value whatever; certain spots of softening and the like are claimed to have been noted, but they were probably post-mortem changes.

The course of the disease is very variable, showing a tendency to reappear after months or even years of absence. It is comparable in this respect to chorea vulgaris, though of longer duration. Gowers quotes several cases of tetany occurring in successive pregnancies, and Osler refers to a similar case (*Trans. Am. Assoc. of Physicians*, 1894). The prognosis is practically always favorable, only a few doubtful cases of death having been reported. The diagnosis presents no special difficulties if we restrict the term tetany to those cases that present the classic symptoms. *Petit mal*, tetanus, organic brain disease, and hysteria are the affections most likely to be confounded with it. It is not likely that true tetany is often mistaken for hysteria, but the opposite mistake probably frequently occurs. One feels convinced in reading many of the cases reported as tetany that the condition was hysteria. The unilateral character of hysterical contractures and the presence of other stigmata are usually diagnostic. The treatment may be summed up in a few words: Good hygiene, proper diet and exercise, the bromides and electricity, and perhaps local applications. Chloroform applied locally seems to have a good effect, as does ice to the spine. I have ventured to bring this case before the notice of this society in the hope that more cases of this rare and interesting affection will be observed and reported.

819 N. Charles Street, Baltimore.

The Salicylate of Sodium in Ophthalmia.—A solution of the salicylate of sodium, of the strength of ten grains to the ounce and upward, is highly recommended by an occasional contributor as a collyrium in simple ophthalmia. When frequently applied the effects are quickly manifested.

NEURITIS.*

By F. H. STEPHENSON, M. D.,
MEMBER OF THE NEW YORK STATE MEDICAL ASSOCIATION,
ONONDAGA COUNTY MEDICAL SOCIETY,
CENTRAL NEW YORK MEDICAL ASSOCIATION,
SYRACUSE ACADEMY OF MEDICINE.

I wish to call your attention to the subject of adventitial or isolated neuritis, as illustrated by four cases under treatment by me, of which I shall give brief sketches:

Case I.—Jennie B., ten years of age, has had the simple diseases of childhood. Her family history is negative. She has sore throat frequently. After each attack she is lame in her left limb and has pain on extending the heel to the floor; she also limps. After an illness she walks first on the left toes. There is now no difference in the temperature of the two limbs; there is a slight atrophy in the affected limb, but no pain on moving the foot or knee joint, or on pounding on the bottom of the extended foot and limb, such as would occur in the hip if the disease were there. The knee-jerks are normal; there are no changes in sensation. The faradaic responses are good on the right side; the tibialis anticus responds with stronger current on the left side. The posterior group responds well.

The ætiology is a great aid to the diagnosis of this disease.

Diagnosis.—Probably ataxic neuritis of diphtheritic origin, as a history was given of frequent sore throats.

In diphtheritic paralysis there is often a symmetrical neuritis, which was formerly thought to be always due to spinal-cord disease. But in this case we have healthy action of all but a single group of muscles.

These cases of diphtheritic neuritis are sometimes taken for poliomyelitis. But in poliomyelitis we have loss of the reflexes, marked atrophies, and the reactions of degeneration; in them the onset is also very acute and usually painless. In neuritis the course of the disease is different: we have pain, tenderness over the course of the inflamed nerves, decided paralysis in the distribution of the nerve, and other symptoms which will be enlarged upon in the cases which follow:

Case II.—Mr. W., aged fifty years. He was driving a fractious team of horses in winter, and wore a pair of tight kid gloves. The seam about the thumb pressed to a somewhat painful extent against the terminal filaments of the median and radial nerves. The thumb became intensely cold and painful, which caused him to think he had frozen it. The pain was only partially controlled by artificial heat, rubbing, and wrapping in flannels. Physicians were consulted, who treated him for a sprain, for rheumatism, and gout. Electricity was used—both galvanism and faradaism; also baths at Clifton were resorted to. When the patient was referred to me, the disease had continued for over three months. The patient was unable to dress himself or to use the hand in any way without extreme pain. If it became at all chilled, he also suffered. The skin presented a shining appearance and was extremely tender over the course of the nerves. Some of the same symptoms, only to a less degree, extended to the first finger and part of the second.

My diagnosis was neuritis from cold. I first ordered absolute rest of the arm, having it bound in flannel and carried in a sling. Sometimes it is even necessary for a patient to remain in bed, to avoid the slightest movement, as the muscular contractions over these nerves are a source of constant irritation and pain. I gave this patient three grains of sodium salicylate and two grains of quinine, four times daily; also applied galvanism, applying the anode over the painful part of the nerve, giving daily sittings of about twenty minutes' duration. This patient made a complete recovery in about four months, and for two years has had no return.

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* Read before the Onondaga Medical Society, February, 1895.

Case III.—Miss G., while crossing the street, slipped on the ice and fell on the street-car track, striking the sciatic nerve. She was dazed and helpless, but in a few moments was able to move with assistance and was driven home. A physician was called, who prescribed liniments, which she used for a month with little benefit. When I was called to see her I found the sciatic nerve swollen and extremely tender. The limb had wasted, and she was scarcely able to move, experiencing constant and extreme pain when attempting to do so, and walking in a manner resembling that of a person affected with tabes.

This patient was put to bed and artificial heat applied, as her condition seemed rather to suggest heat than cold, although Chapman's spinal ice bags are perhaps now used with greater benefit than hot applications in sciatic neuritis. Galvanism and internal medication were employed, as in Case II. This patient made a complete recovery in about four weeks. Last year she fell and struck the opposite limb in the same manner with the same symptomatology. After the course of treatment already mapped out had been employed with but little improvement, blisters were applied with some benefit. Deep-seated injections of from five to ten minims of a one-per-cent. solution of osmic acid were given once daily for three or four days. The pain had to be controlled by morphine, which many times only seemed to relieve when given hypodermically.

Deep cocaine injections are recommended, but they are only of temporary value. Nerve-stretching I have not been obliged to resort to, nor should I wish to except in a very extreme case, as paralysis sometimes follows such an operation.

Many cases of neuritis presenting ataxic walks and diminished knee-jerks with sluggish reflexes are mistaken for tabes. When the patients are cured they are reported as cases of tabes, when really they were only cases of neuritis. Fully ninety per cent. of cases of neuritis result from cold. The inflammation in a majority of these cases is in the sheath of the nerve, and a deposit is formed which presses on the nerve substance. In more severe cases the nerve tissue or substance is involved.

The symptoms of neuritis vary extremely according to its intensity, its extent, and the nerve that is affected. The chief symptoms are local. The most prominent is pain felt in the inflamed part of the nerve, and also often in the part to which it is distributed. Sometimes the pain involves the whole limb, and in severe cases it may be most intense, burning and boring, but rarely darting, in character: "a little devil boring away!" as one of my patients recently expressed it. The pain is increased by movement, by postures that involve tension or pressure of the nerve, and by whatever causes passive congestion of the limb, such as the act of coughing. Sometimes it seems to radiate into distant parts, and pain is often also felt in the corresponding region of the opposite limb. The sensitiveness of the affected region is increased, and even the bone may be tender, so that at first attention may not be directed to the nerve, but when this is pressed great pain is always produced. In slighter cases the pain is usually limited to the nerve and its distribution. If the nerve is accessible to direct examination it may sometimes be felt to be distinctly swollen at the affected part. Occasionally the skin over it is observed to be red. The muscles supplied by the nerve become weak in various degree and tender, and present fibrillar twitchings. They are seldom powerless, but pain may prevent their contraction. They present the altered electrical reactions characteristic of nerve lesions. Sometimes eruptions occur; in some cases the epidermis thickens, as in ichthyosis; again, atrophies occur, as glossy skin. Constitutional disturbance subsides in the course of a few days. Frequently pain and other symptoms subside into a chronic stage and may continue as a secondary neuralgia. Alterations in the nutrition of the joints occur and adhesions form, limiting the movement of the limb. The inflammation is sometimes ascending in character, attacking the spine and continuing on to the nerves of the other side of the body. Also reflected pains are occasionally felt in the opposite side of the body when there are no evidences pointing toward neuritis. The following case illustrative of this is under treatment now:

A man of seventy years fell, over three months ago, striking on the right sciatic nerve. He developed a typical neuritis, with the symptoms already enumerated, although for some weeks he had been treated for a strain, with liniments, etc. The opposite limb began to develop reflex pains, with some weakness and tenderness, simulating neuritis very closely. Under treatment the symptoms subsided more rapidly than on the injured side. The patient is still under treatment and promises a fairly good recovery.

A slight acute neuritis may run its course in a few weeks and then subside. Much more commonly the affection persists in a chronic stage for many weeks and months. The diffuse pains that attend the onset may be mistaken for the pains that attend acute rheumatism, but in the course of a day or two the localization of the symptoms declares their nature.

Chronic neuritis is easily often mistaken for neuralgia; but let us compare sciatic neuralgia and sciatic neuritis. In sciatic neuralgia we have some painful points along the nerve, intermittent pain, no loss of power, as a rule, except from pain, no atrophy, and no electrical changes; the reflexes are normal, and there is no loss of sensation; while in sciatic neuritis we have usually the entire nerve tender and painful; there is constant pain, decided paralysis in the distribution of the nerve, atrophy, electrical, sensory, objective, and subjective changes, and the reflexes are often diminished or lost. In both of these conditions, although the symptoms and clinical appearances differ, the treatment is quite similar. But one thing is absolutely imperative—viz., complete rest of the member, regardless of whatever medication is employed. If this precaution is not taken, disappointment is sure to follow any treatment.

The Appleton Prize, consisting of twenty-five dollars' worth of medical publications, offered annually by the firm of D. Appleton & Co. to the candidate passing the best examination before the board of medical examiners of the State of South Carolina, was won this year by Dr. Jenkins M. Pope, of Charleston.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by
D. Appleton & Co.
Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, JUNE 8, 1895.

MEDICAL CENTRES.

The degree of importance attained to by any particular centre of medical teaching is justly held to be dependent in great measure on the excellence with which it does its work, on the abundance of its clinical resources, and on the adequacy of its equipment in the way of laboratories and the like. But this is by no means the whole story. A certain large city becomes the medical centre for a pretty definite area of country, and with little variation continues for long periods of time to perform its function accordingly. It would be interesting to have the data so displayed as to show graphically in detail the territories tributary to the various great centres of medical teaching in the United States, but at present we must content ourselves with a few examples shown in a very general sort of way. Thus, Boston seems to draw its students mostly from its own immediate vicinity, from Maine, from New Hampshire, from the eastern part of Massachusetts, from Rhode Island, and from the northeastern part of Connecticut; New York is resorted to from Vermont, the whole State of New York, the western part of Massachusetts, nearly the whole of Connecticut, the northern part of New Jersey, the northwestern portion of Pennsylvania, and Ohio and Indiana; Philadelphia draws from the greater part of Pennsylvania, from the southern portion of New Jersey, and from the Southern States almost indiscriminately; Chicago serves for the whole Northwest; and St. Louis, Louisville, New Orleans, and Atlanta are the centres for the Southwest and South, exclusive, in the case of the South, of the element that is attracted to Philadelphia. The few notable changes that have occurred of late years seem to be Boston's loss of its former large quota from the eastern British Provinces and Philadelphia's comparative loss of southerners.

It will be seen that the areas here indicated correspond very closely with those from which the various cities mentioned draw their domestic commerce, and the inference is unavoidable that geographical considerations quite outweigh all others in leading the medical student to decide upon the city in which he will take his courses—not, indeed, as regards individual schools and not in all instances as regards even the general question, for every considerable medical school in the country has students from all quarters of the land. A city's commercial importance enhances its attractiveness as a centre of medical teaching, and naturally the territory in which that attractiveness is most potent is the same as that in which it is commercially the most prominent. In so far as the student deviates from governing himself by ideas of commercial supremacy—meaning local supremacy—he is apt to take into view solely the reputed excellence of particular schools, and this seems to be the reason why those cities that have the best schools are steadily gaining in the number of students that resort to them. It is easy to see that this will come to be more and more operative year by year, and that the different cities must keep on advancing their standards or lose their relative status as centres of medical education. The spirit of rivalry will thus be kept alive, and its action will be in every way beneficent.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 4, 1895:

DISEASES.	Week ending May 28		Week ending June 4.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	9	2	6	3
Scarlet fever	103	13	90	17
Cerebro-spinal meningitis	2	2	4	4
Measles	283	30	348	44
Diphtheria	198	49	195	45
Small-pox	0	0	1	1
Tuberculosis	115	97	51	107

State Medical Examining and Licensing Boards.—A permanent national organization of the various State boards was effected at the recent meeting of the American Medical Association at Baltimore. Officers were elected for the ensuing year as follows: President, Dr. W. W. Potter, Buffalo, N. Y.; vice-president, Dr. J. M. Hays, Greensboro, N. C.; secretary, Dr. B. M. Griffith, Springfield, Ill. Committee to draft constitution and by-laws: Dr. Charles McIntyre, Easton, Pa.; Dr. W. W. Potter, Buffalo, N. Y.; Dr. N. Payne, Albany, N. Y.

The purposes of the association are to establish a uniform schedule of requirements for all medical colleges and examining boards, and to assist in perfecting a method for higher medical education.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from May 12 to June 1, 1895:*

Richard, Charles, Captain and Assistant Surgeon, when relieved from duty at the Military Prison, Fort Leavenworth, Kansas, will proceed to and take station at St. Louis, Mo., for duty as attending surgeon and examiner of recruits.

Egan, Peter R., Captain and Assistant Surgeon, is relieved from duty at Fort Custer, Montana, and ordered to Fort Assiniboine, Montana, for duty, relieving Byrne, Charles, Major and Assistant Surgeon. Major Byrne, on being thus relieved, is ordered to Fort Snelling, Minnesota, for duty.

Shannon, William C., Major and Surgeon, is ordered to Fort Custer, Montana, for duty upon the expiration of his present leave.

Howard, Deane C., First Lieutenant and Assistant Surgeon, will be relieved from duty at Fort Snelling, Minnesota, upon the arrival there of Byrne, Charles B., Major and Surgeon, and will then proceed to Fort Custer, Montana, and report for duty at that post.

Chapin, Alonzo R., Captain and Assistant Surgeon, by direction of the President, is retired from active service this date, May 10, 1895, having been found by an army retiring board incapacitated for active service on account of disability incident to the service.

Wakeman, William J., Captain and Assistant Surgeon, is granted leave of absence for four months, to take effect on being relieved from duty at Fort Thomas, Kentucky.

Gibson, Robert J., Captain and Assistant Surgeon, will be relieved from duty at Fort Sam Houston, Texas, by the commanding officer of that post, and will report in person to the commanding officer at Fort Thomas, Kentucky, for duty at that post.

Gardner, William H., Major and Surgeon, is relieved from duty as attending surgeon and examiner of recruits at Headquarters Department of Dakota, and ordered to Fort Reno, Oklahoma Territory, for duty at that post, relieving Cronkhite, Henry M., Major and Surgeon. Leave of absence for four months, on surgeon's certificate of disability, with permission to leave the Department of the Missouri, to take effect on being relieved from duty at Fort Reno, Oklahoma Territory, is granted Major Henry M. Cronkhite, Surgeon.

Crampton, Louis W., Captain and Assistant Surgeon, is granted leave of absence for ten days, to take effect from the date of the conclusion of his examination for promotion.

Wilcox, Timothy E., Major and Surgeon, is granted leave of absence for one month and fifteen days, to take effect on his arrival in New York city, *en route* to his station in the Department of the East.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending June 1, 1895:*

Walton, T. C., Medical Inspector. Ordered to examination preliminary to promotion as Medical Director.

Beardsley, G. S., Kidder, B. H., and Van Reypen, W. K., Medical Directors. Ordered as a board to examine medical officers for promotion.

Bates, N. L., Medical Director, Flint, J. M., Medical Inspector, and Gatewood, J. D., Passed Assistant Surgeon. Ordered as a board to revise the book of instructions for medical officers.

Society Meetings for the Coming Week:

Monday, *June 10th:* New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society, New York (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private).

Tuesday, *June 11th:* Delaware State Medical Society (first day—Wilmington); Massachusetts Medical Society (first day—Boston); New York Medical Union (private); Kings County, N. Y., Medical Association; Medical Societies of the Counties of Chenango (semi-annual), Erie (semi-annual—Buffalo), Genesee (annual—Batavia), Oswego (annual—Mexico), Rensselaer, Schenectady (semi-annual—Schenectady), Warren (annual—Lake George), and Wyoming (Warsaw), N. Y.; Newark (private) and Trenton, N. J., Medical Associations; Clinical Society of the Elizabeth, N. J., General Hospital and Dispensary; Northwestern Medical Society of Philadelphia; Practitioners' Club, Richmond, Ky.

Wednesday, *June 12th:* Kentucky State Medical Society (first day—Harrodsburgh); Delaware State Medical Society (second day); Massachusetts Medical Society (second day); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Metropolitan Medical Society, New York (private); Medical Societies of the Counties of Albany, Dutchess (semi-annual—Poughkeepsie), and Montgomery (semi-annual—Fonda), N. Y.; Middlesex, N. J., County Medical Society (annual); Rhode Island, R. I., County Medical Society (annual—Providence); Philadelphia County Medical Society.

Thursday, *June 13th:* Kentucky State Medical Society (second day); Society of Medical Jurisprudence and State Medicine, New York; Brooklyn Pathological Society; Medical Societies of the Counties of Cayuga, Cortland (annual), and Fulton (semi-annual), N. Y.; New York Laryngological Society; South Boston, Mass., Medical Club (private); Pathological Society of Philadelphia.

Friday, *June 14th:* Kentucky State Medical Society (third day); Medical Society of the Town of Saugerties; Brooklyn Dermatological and Genito-urinary Society (private); German Medical Society of Brooklyn.

Saturday, *June 15th:* Clinical Society of the New York Post-graduate Medical School and Hospital.

Answers to Correspondents:

No. 436.—We fear you are in search of what is not likely to be found—a trustworthy medicinal depilatory that is permanent in its action. In your use of the depilatories of which the formulæ are given in the text-books, you may not have had the advantage of having them freshly prepared. The following formula was published in the *Pharmaceutical Era* a few weeks ago:

Iodine............................	23 grains;
Oil of turpentine..................	40 drops;
Castor oil,........................	1 drachm;
Alcohol...........................	5 drachms;
Collodion, enough to make........	2 ounces.

Mix. To be applied daily for three days. We can not vouch for its efficacy.

Births, Marriages, and Deaths.

Married.

Flagg—Walker.—In Buffalo, N. Y., on Wednesday, May 22d, Dr. John Dodd Flagg and Miss Minnie Marea Walker.

McQueen—Woodward.—In New York, on Monday, June 3d, Mr. Walter McQueen and Miss Daisy Grace Woodward, daughter of Dr. and Mrs. Corydon Woodward.

Wickes—Craig.—In New Orleans, on Monday, May 27th, Dr. Henry W. Wickes, United States Marine-Hospital Service, and Miss Josephine Craig.

Woods—Bailey.—In New Orleans, on Wednesday, May 22d, Dr. William H. Woods and Miss Octavia Bailey.

Died.

Blickhahn.—In St. Louis, on Monday, May 20th, Dr. Walter L. Blickhahn, aged thirty-four years.

Dowsing.—In Birmingham, Ala., on Monday, May 27th, Dr. J. W. Dowsing.

Helmuth.—In Chicago, on May 25th, Dr. Carl Helmuth, aged seventy-eight years.

Lansing.—In Burlington, N. J., on Wednesday, May 29th, Dr. Edward S. Lansing.

Von der Smith.—In Bloomfield, N. J., on Friday, May 31st, Dr. Samuel Paterson Von der Smith, aged seventy-four years.

Proceedings of Societies.

SOCIETY OF ALUMNI OF BELLEVUE HOSPITAL.

Meeting of May 1, 1895.

The President, Dr. C. C. Barrows, in the Chair.

Spontaneous Fracture in a Tabetic Subject.—Dr. J. W. S. Gouley presented on behalf of Dr. Charles Phelps the bones taken from the leg of a man, fifty-six years of age, who had been admitted to Bellevue Hospital on November 19, 1894. Three years before there had been difficulty in walking at night, and he had shown inco-ordination of the muscles of the lower extremities. There had also been shooting pains in the thighs. A year before he was admitted both feet had been numb, and he right knee had been swollen but painless. He had continued to walk up to ten days prior to his admission, when a spontaneous fracture had occurred in the vicinity of the knee. When first seen he had been markedly ataxic, and not only had the knee been swollen, but there had been a tumefaction extending high up the thigh and down the leg. The skin of the thigh and leg had been dotted with ecchymotic spots. The speaker said that he had seen the patient with Dr. Phelps a few moments before the operation had been performed, and the case had appeared to him to be one of spontaneous fracture with necrosis. At that time he had not been aware of the previous history of ataxia. The specimen consisted of a little over one half of the thigh bone, on which was what appeared to be an exostosis. This patient, like the majority of ataxic patientst had been probably a syphilitic subject. The fracture had occurred in the upper part of the tibia; it had been oblique, and the upper fragment had been broken into two pieces. The fracture had occurred ten days before his admission, and three weeks after his coming to the hospital amputation of the thigh had been performed. It was well known that even without a blow or fall the bones in the vicinity of the joints of ataxic patients were liable to be spontaneously fractured. This was probably what had occurred in the present instance. The upper end of the tibia was necrotic, and there had been an imperfect involucrum and some recent callus, both of which had probably formed four or five weeks before the operation. In view of the condition found the operation had been fully justified. Of course, resection had been out of the question. Partly owing to the belief on the part of some of those who had seen the patient that there might be malignant disease of the bone, the amputation had been suggested and performed.

Dr. Parker Syms said that this was the first specimen he had seen of so-called Charcot's joint, or arthropathia tabidorum. It had been maintained by many that the changes that occurred in these joints were due to traumatism. Owing to the more or less complete analgesia of the lower extremities, it was supposed that after some slight injury, such as a synovitis, the patient, not feeling any pain, had continued to use it, and as a consequence these extensive changes had taken place. Personally, it seemed to him that the pathological changes were entirely opposed to this view, and besides it was a well-known clinical fact that so-called Charcot's joints developed in the upper extremities, where analgesia was certainly not so marked, and where there would not be the traumatism that would result in the lower extremities from walking. Again, it should be remembered that these arthropathies had developed in persons while lying in bed. The bones exhibiting this arthropathy showed also the changes of osteo-malacia, and there was naturally a tendency to spontaneous fracture. In the specimen presented there had been a distinct attempt at repair, but with the fragments in a decidedly false position. When such fractures occurred in the shafts of bones so diseased they united quite firmly. For this reason he had felt that in case of Charcot's disease of the knee joint, where the joint could not be properly used for locomotion, resection might be proper. He had seen but one case in which this had been resorted to—one that had been shown before the Academy of Medicine by Dr. Willy Meyer. In this case there had been union between the divided ends of the tibia and femur. He understood that such operations had been tried abroad and with equally unsatisfactory results.

Dr. Reginald H. Sayre said that he had seen one or two of these Charcot's joints in which it had seemed to him that a traumatism had distinctly aggravated the condition. He recalled particularly one case of Charcot's ankle, with an ununited fracture just above the joint. The patient had come to him on account of what had been supposed to be an uncured sprain of the ankle. This man had had pin-point pupils and lancinating pains in his legs, with beginning heel-walk, and he had given a history of gastric crises. He had been put on antisyphilitic treatment, and the ankle had been immobilized in a plaster-of-Paris boot. This treatment had been continued for about four months, and at the end of this time the eggshell crackling had disappeared from the ankle, there had been a fair range of motion in the ankle, and the size of the joint had been reduced. This man had been kept under observation for about eighteen months, and up to the time when last seen there had been no relapse. The speaker said that he had seen Charcot's joints in both toes. Such a patient had come to him under the supposition that he had a bunion. Under antisyphilitic treatment and protection of these joints they had apparently recovered. At the present time the man had what appeared to be a beginning perforating ulcer of the foot. In Dr. Willy Meyer's case of resection of the knee for Charcot's joint he had thought that the patient walked very well for a man with locomotor ataxia. Firm bony union was not always obtained in resection of the knee for other conditions. Many tubercular joints after resection, if not properly protected by mechanical support, underwent bending, showing an imperfect union. From the few cases that he had seen where tabetic joints had been protected mechanically, and from the specimen just presented, he could not see why good results should not be obtained either from mechanical treatment or from resection. It was important to remember that such cases should be protected by supports, and thus such accidents as spontaneous fractures be prevented.

Dr. Parker Syms said that Dr. Meyer's case had had a flail-joint, and there had been no attempt at union. The patient had seemed to him, however, to walk very well.

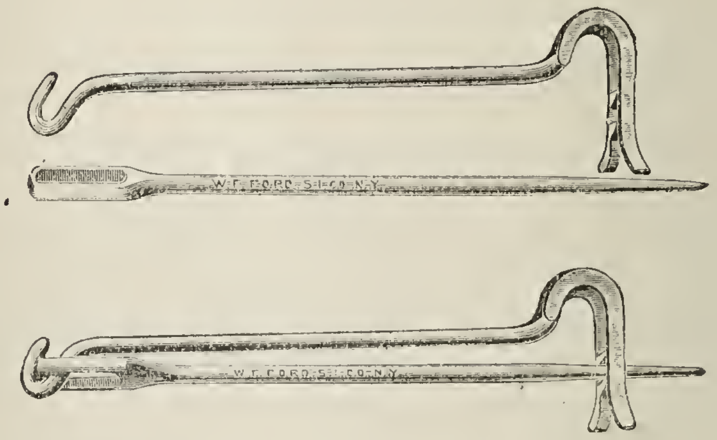
Dr. R. H. Sayre replied that the joint had not united, but the man had been able to control the motions of the joint in an antero-posterior direction, and there had not been sufficient lateral mobility to prevent him from walking.

Dr. Gouley said he did not think that any kind of apparatus would have answered in the case he had reported, and certainly excision would have failed. The amputation had been performed last November, and the patient was now doing well. He was surely better off with a pair of crutches than he would have been if the leg had been preserved—in fact, he felt that the patient would have probably succumbed to septicæmia. A fluid had been found very closely resembling pus, although he had been told that it was not pus.

Phleboliths simulating Ovarian Carcinoma.—Dr. Frederick Holme Wiggin presented a specimen of phleboliths with the following history: Mrs. E., forty-six years of age, had had no children or miscarriages. Her menstrual life had begun at twelve years of age, and after the second year had been regular and painless. The patient had always enjoyed good health and had been a hard worker. Eight years ago, shortly after lifting a heavy stove, she had been seized with a severe pain in the right inguinal region, which had continued with more or less intensity for some months. She had then consulted him. A vaginal examination had revealed a sensitive mass posterior and to the right of the uterus, movable, and of about the size of an ovary. Supposing it to be an ovary, the patient had been placed in the knee-chest position, and the mass had been replaced and retained by a retroversion pessary. This had given the patient relief. When next seen, on April 7th, with Dr. W. S. McLaren, of Litchfield, Conn., she had stated that last autumn, on returning to her home from a wake, she had been again seized with severe pain in the right inguinal region, radiating into her right hip and "the small of her back." With this paroxysm her bowels had moved freely, and there had been vesical tenesmus and hæmatemesis. The pain had lasted about six hours, and she had been relieved by the patient placing herself in the knee-chest position. The paroxysm of pain had recurred from time to time. She had been constipated. On vaginal examination the uterus had been found to be retroplaced, and a hard, nodular, immovable, and sensitive mass had been found to the right of and slightly posterior to the uterus. This mass had occupied the same position as the one found previously. The diagnosis had been malignant disease of the right ovary. An operation for its removal had been advised, and had been performed at St. Elizabeth's Hospital. Although the vagina had been somewhat contracted and rigid, it had been decided to remove the tumor by this route. The incision had been begun about an inch below the meatus urinarius, and had been extended down the anterior vaginal wall to the cervix. The flap had then been dissected from the bladder, as in Mackenrodt's operation for vagino-fixation. A transverse incision at the cervico-vesical junction had been made, and the bladder separated from the uterus by blunt dissection with the fingers. The peritonæum had been incised, and the fundus of the uterus had been seized with a pair of bullet forceps and drawn forward. The finger passed into the pelvic cavity had detected the nodular mass surrounded by adhesions, but the parts could not be easily made out. At this time the patient, who had borne the anæsthesia badly, had become rigid, making further progress for the time being impossible. After a little delay it had been decided that as the uterus and tubes were in a fibromatous condition they should be removed. This having been done, although the patient was still rigid, it was possible to reach the tumor, which had proved to be composed of phleboliths. Three large ones, each of the size of a cherry stone, had been detached, and as the tumor had been apparently benign in character, and in view of the difficulty with the anæsthetic, it had been deemed best to terminate the operation without further interference. The pelvic cavity had then been irrigated with hot saline solution, and the wound in the vaginal walls had been closed with a continuous catgut suture, no drainage being employed. A little iodoform gauze had been placed in the vagina and an antiseptic pad over the vulva. The patient had so far made a good recovery, and she had had no pain. Her pulse and temperature had become normal on the second day, and her urine had been passed voluntarily at the end of thirty-six hours. The gauze had been removed from the vagina on the second day, and had not been replaced. To-day, the fifth since the operation, the wound had apparently healed, and the patient moved easily from side to side and was free from pain.

Dr. Gouley said that he had seen these phleboliths removed, and he had suggested that the woman had had at some time an injury, which had caused thrombosis of the veins between the broad ligament and the rectum. A number of thrombi must have been formed, because the tumor had felt like a bag of buckshot. These were the largest phleboliths he had ever seen: they measured a centimetre in mean diameter. As was well known, phleboliths were developed from the calcareous infiltration of thrombi. They were very commonly found in old men with enlarged prostates, in the venous plexuses between the surrounding prostate and rectum. He had seen hundreds of them in this situation, but none so large as those in the case under discussion. The specimens were still encapsulated in the veins. Cases of sepsis after operations on the genital organs of women were probably not infrequently due to softening of such thrombi, such as originally occurred in this case. The finding of these phleboliths had decided against the malignancy of the tumor.

A New Intestinal Clamp.—Dr. W. S. McLaren presented a new instrument of this kind. He said that some months ago, feeling the need of a light clamp for preventing the escape of intestinal contents while an anastomosis was being made, he had devised this extemporaneous clamp. It could be made in a few minutes wherever a steel knitting needle could be procured. The knitting needle was simply broken in two pieces of about equal length, the parts laid parallel, and the broken ends united by a few figure-of-eight turns of stout silk. This silk formed the hinge, and a cork pushed upon its sharp ends was the catch. In use, either point might be thrust through the mesentery. The two points were then brought together until the proper amount of compression was secured, when the cork was pushed over its points, making the clamp secure. It was, of course, necessary to wrap the broken ends of the needles in a piece of gauze to prevent any possible injury from the sharp corners. This clamp, the speaker said, was light—a very desirable feature in an instrument of this sort; it could be quickly made and easily sterilized, and was perfectly competent. He had used it in several operations for intestinal obstruction and had never had any leakage. It had worked so satisfactorily that he had had Mr. Ford make a clamp for him on the same general principles, but with a permanent hinge and lock. The advantage of this hinge was that it could be quickly adjusted and very thoroughly cleansed. At the time of an operation the two parts should be separated. The operator had then simply one straight needle to handle while piercing the mesentery. When this was in place the other part was hooked through its eye and brought down until it locked.



Resection of the Colon for Adeno-carcinoma.—Dr. W. S. McLaren presented a specimen of adeno carcinoma of the colon, and reported a case. (To be published.)

Dr. W. **Evelyn Porter** said that certainly those who operated on emergency cases must find this new clamp exceedingly useful. The result of the operation was also particularly satisfactory. In cases of resection, even of the large intestine, it seemed to him that the Murphy button was of the greatest aid. He recalled a recent case in which this button had been used in resecting about six inches of the splenic flexure of the colon. The button had come away within a few days, and there had been an uncomplicated recovery.

The **President** said that the clamp seemed to him very ingenious and satisfactory, yet he would utter a word of warning against any clamp that perforated the mesentery. The cases of failure after intestinal anastomosis that he had seen had all been due to the failure of union of the intestine at the mesentery. He had more than once seen a very slight injury of the mesentery result in serious gangrene of the intestine; therefore, if any clamp were to be used, one working on the principle of the ordinary clothespin, and not perforating the mesentery, seemed to him the better. Of course, if one were willing to perforate the mesentery, a piece of gauze or tape might be used with satisfaction. Some years ago he had devised a clamp which operated without perforating the mesentery, but after a while he had found that he could do just as well without it. If the intestine were stripped back far enough, and held properly by assistants, there would be no leakage.

In answer to a question from Dr. Robert T. Morris, the speaker said that in cases of gangrene of the bowel mentioned, the gangrene had been due to the interference with the blood-vessels.

Dr. **Wiggin** said that he wished to congratulate Dr. McLaren both on the clamp and the operation. He had used the clamp experimentally on the lower animals, and had found no injury to the mesentery afterward. Last October, assisted by Dr. McLaren, he had done a double anastomosis on a dog, using the Murphy button and also the Maunsell method. The dog had been killed a week ago, and it had been found that the lumen of the gut had been maintained in both instances.

Dr. **McLaren** said that in the country competent assistants could not often be obtained, and therefore it became necessary to have something to control the intestine. This was the reason for using the clamp. In the case referred to, there had been enough fæcal matter to fill three bedpans when the bowels had moved. He had had the clamp made with a blunt point so that it would not injure the blood-vessels. He thought that by placing it some distance from the intestine, the vessels would be crowded aside and not injured by the clamp. One objection to the use of the Murphy button low down in the intestine was the extremely thick and often very short mesocolon. In a case like the one reported, he felt that the button could not have been used on account of the extremely low site of the trouble.

Report of Some Cases of Fibrous Ankylosis treated by Electrolysis.—Dr. **Fred. Walker Gwyer** read a paper with this title. (To be published.)

Dr. **George Woolsey** said that he had not applied the electricity personally in any of these cases, but had sent the patients to the reader of the paper, or had had them treated by the house staff of the hospital. The cases could be classed as: (1) cases of injury, (2) cases of disease, and (3) cases of stiffness following operation. In all these, benefit had resulted from the treatment, and in some cases it had been surprisingly rapid as well as marked. He recalled one or two cases of tubercular joint disease successfully treated in this way. Two cases had been cured by injections of iodoform emulsion, and the application of electricity had greatly relieved the pain and increased the motion of the joints without the pain attending passive motion. The larger number of cases in which good results had been obtained were those following injury. With one exception, these cases had done extremely well. This method of treatment, of course, came in competition with massage, passive motion, and even breaking up of adhesions under ether. The last he had usually found rather unsatisfactory, because the adhesions generally re-formed after a time. Of course, massage and passive motion were valuable, but they were often not well applied. He felt that his own experience now was sufficiently large to justify him in recommending this treatment very highly, in conjunction with other methods, or where other methods had failed.

Dr. **Reginald H. Sayre** said that he had had but a limited experience with the method. He had sent some old tubercular cases to Dr. Gwyer in the hope that the motion of these stiff joints might be improved. He did not feel that the effect in this class of cases had been great, although in a case of rheumatism he had seen it act very beneficially in relieving the pain and stiffness. From a theoretical standpoint he felt that the method of treatment should be beneficial, but why it should be more successful in rheumatic conditions than in stiffness of joints following tuberculosis he could not say. Galvanism should act upon the human tissues and produce electrolysis just as it did in the laboratory, and therefore one would expect that it would dissolve the adhesions.

Dr. **C. G. Sproull** said that he would like to refer to the effect of galvanism in treating a synovitis of the knee joint occurring in his own person. The synovitis had been the result of injury, and had occurred about seven weeks ago. The knee had been treated by elevation, massage, and the Martin bandage, which had been removed twice daily and massage treatment given, and afterward by plaster of Paris. At the end of one month the plaster had been removed, and on using the knee for about a week the synovitis had been nearly as bad as before. Seven days ago, Dr. Gwyer had begun treating him with galvanism. At this time the circumference over the patella had been seventeen inches on the affected side, as against fifteen inches and three quarters over the other patella. He had received four applications, with the result that there had been a marked diminution in the fluid and œdema, and a very great increase in the motion.

Dr. **Gouley** said he had noticed that the reader of the paper and several of the speakers had made use of the words "electricity," "galvanism," and "electrolysis," and he would like to know which of the three methods had been used on the cases reported.

Dr. **Gwyer** replied that electrolysis had been used.

Dr. **Gouley** said that two or three professors of electrical science had lately said that they were surprised that physicians were using some of the forms of electricity for the cure of certain diseases, for they could not conceive that ordinary electricity or galvanism could possibly have any effect except as a kind of gymnastics of the muscles, and that nothing short of electrolysis had any positive action. Electrolysis exerted a destructive action, as its name implied. Electrolysis applied to a surface was supposed by the reader of the paper in discussion to exert some mysterious selective effect on certain adhesions within a joint. This curious selective effect he could not understand. He would like to know whether there was any explanation of such a phenomenon as the selection and dissolving of these adhesions. He believed that he had been one of the first to use the electrolytic process in this country. He had employed it in a tumor of the thigh which had proved to be a sort of hygroma. In this case the electrolytic process had been so thorough that a large abscess had formed. This had been the experience of other surgeons. The electrolytic process had been applied in cases of stricture of the urethra with the almost invariable result of causing a traumatic stricture. He had had under his observation several cases that had been reported as cured by electrolysis, and yet he had found a few months after the treatment that they had had bad traumatic strictures. In conclusion, he would ask whether the electrolytic process had any selective effect on these deep-seated processes.

Dr. L. W. **Hotchkiss** thought that the paper showed quite clearly that galvanism had no selective effect on old, well-organized adhesions, and that the author had found, as many others had done, that the best results had been obtained in the more recent cases. During the past few years he had had an opportunity of using electricity at the Roosevelt Dispensary. He had employed a weak galvanic current, although in a somewhat desultory and routine manner, and in connection with massage, active and passive motion in various painful joints, and in recent ankylosis. In almost all cases of Colles's fracture, with stiff and painful joints, in which electricity had been used, the result had been satisfactory, but, inasmuch as douching and rubbing and motion of the joints had been used with the electricity, it was difficult to say in these cases how much the electrical current had really accomplished.

Dr. **Gwyer** said in reply to Dr. Gouley's question, that on the removal of the positive electrode, after the employment of a heavy current, one would find evidence of a charring action of the current, whereas the skin under the negative electrode would show rather a vesicant action. He did not know that any physician or electrician could say positively what was the action of the current on the tissues beneath the skin. He believed, however, that the electrolytic action of the current was exerted most powerfully on newly formed fibrous tissue, and, by regulating the amount of current, its action could be quite closely confined to this tissue. The knowledge of professors of electricity was no doubt thorough as regarded their subject, but few of them were familiar with its clinical application. They furnished the electricity, and the physician or surgeon used it, learning its action by experience.

Dr. **Gouley** said that his question yet remained unanswered, and he did not believe it could be answered. He would challenge all those who practised electrolysis to go further. In point of fact, there was no selective affinity—at least, it would be very strange if there were. If electrolysis were employed consistently, it would result in the destruction of all the tissues in the locality treated. The reports of the cases of fractures, with more or less adhesions about the wrist joint, had particularly interested him, but he had never seen a case of Colles's fracture in which, after a reasonable time, there had not been good motion. The tendency had been to extend the splints beyond the joints and keep them in that position for several weeks, and, of course, as a consequence there would be temporary stiffness. With the short splints there need never be any stiffness. If there should be any stiffness, the interrupted electrical current to whip up the muscles would undoubtedly be useful, and electrolysis would be unnecessary or perhaps harmful.

Dr. J. F. **Erdmann** said that he saw no reason why in recent cases just as good results could not be obtained by massage and passive motion. He had seen a good many cases of stiffness after fractures, and yet he had not found it necessary to resort to galvanism. In one case, in private practice, he had found stiffness after Colles's fracture, but in this patient there had been a rheumatoid arthritis. He had used galvanism in several instances, but had not observed any benefit from it.

Dr. **Parker Syms** said that for a number of years he had also worked with fracture cases in the Roosevelt Dispensary, and had observed the effect of galvanism. Since leaving the dispensary he had used the other means without the galvanism, and his results in the same class of cases had seemed to him equally good. He had often employed active motion instead of passive motion. The cases reported in the paper seemed to indicate that the greatest improvement had occurred in just those cases where improvement was what was to be expected naturally at the stage at which the treatment was begun. He had used surface irritation about joints by the Paquelin cautery with much satisfaction, and it was possibly the surface irritation produced by the current that had produced the benefit. While at Bellevue Hospital he had devised a splint made of perforated sheet lead, to be used in cases of Colles's fracture, with the idea of avoiding undue immobilization of the joint.

Dr. **Sproull** said that the treatment had acted in his own case as a cautery, and it was probably by the stimulating action of the current on the circulation that the good effect had been produced.

Dr. **Gwyer**, in closing the discussion, said that he had been much pleased with the criticisms evoked by the paper. His reason for limiting his paper to histories of cases was that nothing was definitely known about the action of the electrical current beneath the skin, and the subject being so broad, he had preferred presenting his results rather than his theories, and would only say he believed that there was, first, dissolution of the newly formed fibrous tissue, and, secondly, a stimulating effect (possibly similar to that produced by the thermo-cautery), which increased the flow of blood to the part, and this hastened absorption of the dissolved adhesions. If every case of fracture were properly treated, there would probably be no need for electrolysis, or massage, or other after-treatment, but this was not the case.

Book Notices.

BOOKS, ETC., RECEIVED.

Pathology and Treatment of Diseases of the Skin for Practitioners and Students. By Dr. Moriz Kaposi, Professor of Dermatology and Syphilis, etc., in the University of Vienna. With Eighty-four Illustrations. Translation of the last German Edition under the supervision of James C. Johnston, M. D. New York: William Wood & Company, 1895. Pp. xvii–684.

The Diseases of Personality. By Th. Ribot, Professor of Comparative and Experimental Psychology in the Collége de France. Authorized Translation. Second Revised Edition. Chicago: The Open Court Publishing Company, 1895. Pp. viii–163.

Traité clinique et thérapeutique de l'hystérie d'après l'enseignement de la Salpêtrière. Par le docteur Gilles de la Tourette, Professeur agrégé à la Faculté de médecine de Paris, etc. Préface de M. le Professeur J. M. Charcot. Seconde Partie—Hystérie paroxystique. Avec 63 figures dans le texte et un portrait à l'eau-forte du Professeur Charcot. Paris: E. Plon, Nourrit et cie., 1895. Vol. I, pp. 556. Vol. II, pp. 607.

La thérapeutique des tissus. Compendium des médications par les extraites d'organes animaux. Par le Dr. M. Bra. Ouvrage précédé de lettres et préfaces de MM. les professeurs Constantin Paul, Mendel Ewald, Bruns, Emminghaus et Byrom Bramwell. Accompagné de 72 gravures. Paris: J. Rothschild, 1895. Pp. xxxi–624.

Semi-Centennial. Proceedings of the American Medico-psychological Association, at the Fiftieth Annual Meeting held in Philadelphia, May 15 to 18, 1894.

Fifteenth Report of the State Board of Health of Wisconsin for 1893-'94.

Wills Eye Hospital Reports. Volume I. No. 1. January, 1895.

Annual Report of the New York Ophthalmic Hospital for 1894.

Documentos Referentes. Al Existente y al Proyectado. Hospital San Agustin. 1895.

El Nuevo Hospital de San Agustin y los Seudo-hijienistas. 1894.

Permuta del Hospital San Agustin. Replica de la Comision del Consejo Departamental de Hijiene de Valparaiso, al voto especial de Señor Intendente, Don Osvaldo Renjifo.

Inaugural Address delivered before the Charity Hospital of Louisiana Alumni Association. By Dr. Joseph Holt.

The Influence of Percivall Pott, Syme, Simpson, and Lister on Modern Surgery. An Address on Surgery by Surgeon Lieutenant-Colonel E. Lawrie, M. B., of Hyderabad.

A Report of Additional Cases of Intracranial Neurectomy. By Louis McLane Tiffany, M. D. Baltimore. [Reprinted from the *Annals of Surgery.*]

Electric Medicamental Diffusion. By William J. Morton, M. D. [Reprinted from the *Journal of the American Medical Association.*]

Vaginal Cœliotomy. By Hiram N. Vineberg, M. D. [Reprinted from the *Medical Record.*]

Modern Abuses in our Materia Medica. By W. S. Fullerton, M. D., Duluth, Minn. (Read before the St. Louis County Medical Society.)

Aseptic Prophylaxis of Asiatic Cholera: Arsenization. By Reginald B. Leach, M. D., Paris, Texas.

Anticholeraic Inoculations in India. By W. M. Haffkine. [Reprinted from the *Indian Medical Gazette.*]

Self-retaining Drainage Cannula for Preventing Scar in Cervical Abscess. By F. M. Briggs, M. D., Boston. [Reprinted from the *Boston Medical and Surgical Journal.*]

On Whooping-cough. Its Great Fatality and the Necessity for Isolation and Rest in its Treatment. By William W. Johnston, M. D., Washington, D. C. [Reprinted from the *Archives of Pædiatrics.*]

On Bathing and Different Forms of Baths. By William Paul Gerhard, C. E. [Reprinted from the *Architecture and Building.*]

Du catarrhe naso-pharyngien. Par Dr. E. M. J. Moure. [Extrait des *Archives cliniques de Bordeaux.*]

Reports on the Progress of Medicine.

OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, A. M., M. D.

(Continued from page 447.)

Formaldehyde as an Eye Lotion.—Gepner (*Ctrlbl. f. prakt. Aug.*, June, 1894) recommends the employment of formaldehyde in solution of 1 to 2,000 or 1 to 1,000 for irrigating purposes during operations, and in all acute conjunctival diseases. It causes decided hyperæmia of the conjunctiva and considerable smarting, which, however, last but a short time in healthy eyes. In inflamed conjunctivæ the secretion is markedly diminished.

An Apparatus for Transillumination of the Eyeball.—Birnbacher (*Ctrlbl. f. prakt. Aug.*, August, 1894) has constructed an apparatus of this sort which consists of a cylindrical metallic chamber with appropriate handle, and containing an electrical lamp of four volts. The chamber is closed behind, but open in front, and into this opening is inserted, by means of a slide, a homogeneous glass rod, which is not straight but is so curved at a distance of five millimetres from the beginning of the oblique section that the section surface runs parallel to the axis of the cylinder. By this curve it has become possible to hold the lamp-chamber out of the way of the observer while he is examining the illuminated eye.

The Action of the Oblique Muscles in Astigmatism.—Wilson (*Arch. of Ophthal.*, xxiii, 3) draws the following conclusions from his observations: 1. Compensatory rotation of the eyeballs in astigmatism will be necessary in order to secure binocular single vision whenever the predominant diffusion lines of any object upon the retina of one eye and the normal or diffusion-line image in the other eye do not fall upon corresponding retinal points. 2. This lack of retinal correspondence or rotation of the image is a function of (*a*) the amount and character of the astigmatism; (*b*) the nature of the ametropia; (*c*) the nature of the object viewed; (*d*) the action of the ciliary muscle.

Is there Coexcitation of Homonymous Sections of the Visual Field such as Schiele has described?—Groenouw (*Arch. of Ophthal.*, xxiii, 3) draws the following conclusions from his experiments:

1. The fatigue curves, as shown in the plates and tables, do not run in any case with even an approach to the regularity that Schiele professes to have found; on the contrary, they cross one another in the most manifold way.

2. The statement of Schiele that "contraction of the outer borders of one sector of the visual field has no influence upon the outer borders of adjacent sectors nor of any other portion of the same visual field" could not be substantiated; on the contrary, it was found that almost always fatigue of one sector of the visual field is accompanied by changes in the outer borders of other sectors of the visual field of the same eye.

3. Schiele makes the statement: "Fatigue of the visual sphere, which is caused by taking the visual field of one eye, is communicated to those fibres of the second retina which end in it in such a manner that in every case only homonymous portions of both visual fields show contraction." The previous experiments did not confirm this; for although in a series of cases the homonymous sector of the visual field of the second eye showed analogous changes in its outer boundaries to the fatigued one in the first eye, this was often not the case. Further, sectors of the second eye, which had not been directly fatigued, and which were not in the least homonymous to the fatigued sector, gave evidence of having been influenced.

The Primary Tumors of the Optic Nerve.—Braunschweig (*Arch. für Ophthal.*, xxxix, 4) divides these tumors into various classes, according to the time at which exophthalmia begins: 1. Cases in which blindness comes on before the exophthalmia. 2. Cases in which, simultaneously with or shortly after the appearance of the exophthalmia, the vision begins to fail, and slowly but steadily grows worse until total blindness is reached. 3. Cases in which the vision does not begin to fail until long after the exophthalmia has become manifest and slowly grows worse. 4. Cases in which the vision is but little or not at all affected by the growth of the tumor. This is only observed in endothelial growths. The cause of the amblyopia and amaurosis is always due to an interruption in the conductibility of the fibres in the optic nerve itself, caused by pressure atrophy or by the infiltration of the nerve fibres with the morbid growth. The diagnostic symptoms are as follows: 1. Gradual painless course without signs of inflammation. 2. Early loss or rapid diminution of the visual power. 3. Relatively normal motility of the eyeball. 4. A palpable or tangible tumor within the muscular cone back of the eyeball.

Myxosarcoma of the Optic Nerve.—Salzmann (*Arch. für Ophthal.*, xxxix, 4) reports three cases of this nature. In all three cases the tumor was separated from the eyeball by a segment of normal nerve, but reached as far backward as the foramen opticum. The origin of the tumor seemed to be in the posterior portion of the orbital part of the nerve, and the general tendency of growth was forward. The growth of the tumor was due partly to an actual proliferation of tissue with the development and enlargement of the cells, and partly to increase in the amount of intercellular fluid. When unsuccessful extirpation has been done, some traces of the neoplasm have been left behind in the optic foramen. These tumors may be regarded as benign, and hence the eyeball should always be preserved intact in any operation undertaken for the removal of the tumor.

The Anatomy of the Congenital Crescent Downward and Inward.—Salzmann (*Arch. für Ophthal.*, xxxix, 4) has found that in these cases there is an absence of all signs of distortion of the chorioid and of the adjacent inner layers of the sclera. The deep cutting in of the chorioid on the side toward the crescent is also absent, as well as the distortion of the nerve-fibre bundles on the side toward the crescent. Throughout the entire region of the crescent there is a doubling in the thickness of the retina, but with partial incomplete development of the two laminæ.

The Influence of Closure of the Arteria Ophthalmica and the Carotid on the Organ of Vision.—Elsching (*Arch. für Ophthal.*, xxxix, 4) gives the following results of his investigations: The gradual slow closure or thrombosis of the ophthalmic artery, internal carotid, or common carotid has no influence upon the circulation in the vessels of the orbit or retina. Sudden obstruction of the ophthalmic artery or carotid may cause temporary, fleeting disturbances of vision, but without anatomical lesions, since the intimate and extensive anastomoses between the branches of the ophthalmic artery and external carotid of both sides soon restore a normal circulation and blood pressure in the vessels.

The Relative Range of Fusion in Elevation and Depression of the Visual Plane.—Schmidt (*Arch. für Ophthal.*, xxxix, 4) considers that the situation of the range or field of fusion is in elevation of the visual plane sometimes the same as in the horizontal or depressed visual plane; but it is generally so displaced that a somewhat greater power of divergence and a diminished power of convergence is present than in the depressed visual plane. The position of the field of fusion is dependent on the existing condition of equilibrium of the eyes. The positions of equilibrium in elevation and depression in various states of accommodation lie generally close inside and approximately about the same distance from the limits of divergence of the fields of fusion. Consequently, with increasing accommodation there results a proportional increasing insufficiency of convergence.

The field of fusion in elevation of the visual plane either remains of the same size, or becomes smaller at the expense of the power of convergence, as it is in depression of the visual plane.

The Significance of the Pitcher-cells of the Conjunctiva.—Green (*Arch. für Ophthal.*, xl, 1) considers these cells as normal structures, which are always found in the normal conjunctiva of man and animals. In structure and function they are probably analogous to the pitcher-cells found in other parts of the animal body, as in the skin of certain fishes, in the mucous membrane of the frog's bladder, in the small intestine of man. They are intended to produce mucus by a natural and physiological process.

Primary, Secondary, and Tertiary Retinal Images after Momentary Light Impressions.—Bosscha (*Arch. für Ophthal.*, xl, 1) draws the following conclusions from his observations:

1. The consecutive retinal images appear in the purest and simplest form with the shortest possible illumination of a circumscribed region of the retina, with exclusion of every other source of light.

2. Contrast effects also occur in the vicinity of the retinal image by illumination with the electric spark.

3. The perceptive processes are more distinct when by local retinal irritation a contrast irritation is produced in the surrounding zone.

4. The perception image in its simplest form has three phases: The primary image, which lasts longer than the illumination itself; the secondary image, which has the complementary color of the first, and is the more distinct the shorter the illumination is; the tertiary image, which has no definite color, and the duration of which increases with that of the illumination.

5. The third phase of the retinal image is distinguished by diminution of the sensitiveness for weak, objective light.

6. The after image of a long-continued, homogeneous illumination is a complex process, composed of the accumulation of a series of light impressions immediately following each other.

Observations on the Ocular Symptoms occurring in Syphilis of the Central Nervous System.—Uhthoff (*Arch. für Ophthal.*, xl, 1) continues his observations on this subject in a second lengthy and interesting paper. He finds that in affections of the trigeminus in consequence of cerebral syphilis, as well as in the neuro-paralytic keratitis connected with them, the cause must be regarded as basal in origin. The optic channels of conduction are relatively more frequently affected than the motor and sensory nerves.

Siderosis Bulbi and the Relations between Siderotic and Hæmatogenous Pigmentation.—Von Hippel (*Arch. für Ophthal.*, xl, 1) draws the following conclusions: 1. The iron reaction with potassium ferrocyanide and hydrochloric acid succeeds even in preparations which have been preserved for a long time in Müller's fluid. 2. The Berlin-blue reaction gives the same results as Quincke's with ammonium sulphate. 3. There is a real siderosis bulbi, arising either from the presence of a foreign body or from the blood. Siderosis is the deposit of ferric oxide in certain groups of cells in organic substances. 4. Hæmatogenous siderosis is completely independent of hæmatogenous pigment. 5. Siderosis appears especially in certain groups of cells, as the epithelium of the ciliary processes, the pars ciliaris retinæ, the retina, and the epithelium of the lens capsule, and may be either xenogenous or hæmatogenous. True siderosis of the cornea has never been positively demonstrated. 6. Xenogenous siderosis results from the solution of the iron by the carbonic acid of the tissue, and its precipitation in the groups of cells the protoplasm of which shows an especial affinity for the iron. 7. Neither the greenish nor greenish-brown nor rusty discoloration of the iris and cornea point with certainty to the presence of a particle of iron in the eyeball. 8. The characteristic circle of brown spots under the lens capsule in the case of the presence of a foreign body is due to the deposit of iron in circumscribed patches of proliferating capsule epithelium. 9. When a particle of iron is present in the vitreous, extensive degeneration of the retina results. 10. After injection of blood into the vitreous, detachment of the retina may occur, with signs of general retinal degeneration. 11. If blood be injected into the vitreous after puncture of the anterior chamber, the anterior capsule of the lens sometimes becomes ruptured.

The Sideroscope: An Instrument for demonstrating the Presence of Fragments of Iron and Steel in the Eye.—Asmus (*Arch. für Ophthal.*, xl, 1) draws the following conclusions from his employment of the above instrument: 1. It is probable that particles of iron or steel may be demonstrated to be present by the sideroscope in nearly all cases, either by the simple magnetic needle or the astatic needle. 2. The localization of these fragments is possible by examination of all the meridians. 3. Astatic needles are in general unsuited to the purpose of localization.

Examination of an Eye with Double Perforation due to Injuries from a Fret Saw.—Duffing (*Arch. für Ophthal.*, xl, 2) has drawn the following conclusions from his observations in this case: 1. The scleral staphyloma was formed from the perforation from within outward of all the ocular membranes in the equatorial region of the upper half of the globe, while staphylomata of this region are usually not traumatic, but are the result of an increase of tension at the point of weakest resistance. 2. Traumatic staphylomata of the upper half of the globe depend on a stretching and thinning of the scleral scar and surrounding scleral tissue; but in this case the staphyloma consisted of entirely new-formed tissue furnished by the sclera, and this tissue is not thinned, but as thick as the normal sclera. 3. The fibres of the new-formed tissue run in the same direction as the fibres of the normal sclera, and pass so imperceptibly into the neighboring normal tissue that the ends of the perforation are not demonstrable.

Deposits of Rust in the Cornea.—Gruber (*Arch. für Ophthal.*, xl, 2) draws the following conclusions from his observations: 1. Particles of iron which have penetrated the cornea vary in their action according to their chemical properties. Metallic iron and ferric oxydule must be regarded as irritating, while ferric oxide is indifferent. The ring of rust remaining after the extraction of a particle of iron, consisting merely of a hydrated ferric oxide, is indifferent and unirritating. 2. Even in cases of non-perforating injury from particles of iron, there often results a deposit of ferric oxide on the membrane of Descemet. 3. The deposit of rust outside the foreign particle follows very rapidly after the injury. 4. The corneal epithelium resists very strongly the entrance of the ferric oxide deposit, while the power of resistance of the corneal substance proper varies in different persons.

Purulent Metastatic Ophthalmia; its Ætiology and Prognosis.—Axenfeld (*Arch. für Ophthal.*, xl, 3) finds that the eye appears to be less favorably disposed to the reception of compact plugs in the vessels than to capillary embolism. He attributes the development of purulent intraocular inflammation to the presence of the *Diplococcus lanceolatus*, which, however, according to most observers, rarely leads to panophthalmitis. In the cases of meningitis due to the presence of the pneumococcus, he considers it probable that the cocci developed from the optic papilla may communicate and mingle with the cocci developed in the intervaginal space, but admits that in these cases there are probably two distinct inflammatory processes present. The greater frequency in the occurrence of metastatic ophthalmia over that of metastatic orbital cellulitis probably points to the prognostic significance of the finest capillaries in favoring the development of this inflammatory process. Bilateral metastatic ophthalmia is of greater prognostic significance than unilateral ophthalmia in reference to a fatal result.

Descemetitis.—Snellen (*Ophthal. Rev.*, August, 1894) concludes that descemetitis is really a disease *sui generis*, and that it is due to microbes growing in the anterior chamber, which, by their producing toxines, cause an irritation of the uveal tract. The dots are at first situated on the cornea, afterward on the iris and lens, and may be also on the ciliary body. They contain in their early stages only microbes, but later these are intermixed with leucocytes.

Cellulitis following Mule's Operation.—Stephenson (*Ophthal. Rev.*, September, 1894) reports a case of this nature, and thinks its occurrence may be explained by assuming the existence of a septic infection passing by the perforating veins of the sclera into the tissues of the orbit and there setting up inflammation. It is not impossible that septic changes were present prior to the operation, and that the altered nutrient and other conditions brought about by surgical interference roused into activity germs that had long lain dormant in the tissues. The alternative theory, that infection occurred during operation, must of course be carefully considered.

A Case of Probable Disease of the Lenticular Ganglion.—Taylor (*Ophthal. Rev.*, September, 1894) reports a case of obscure disease, which had been diagnosticated as glaucoma. The eyeball was congested, the pupil dilated, the tension increased, and the vision misty. The patient was forty-nine years old, with a myopia of D. 16. There was a good deal of neuralgic pain in the eye and vicinity, and the eyeball was slightly protruded. Taylor thought that the rapid onset with the associated symptoms and the progress were opposed to the lesion being situated in the third-nerve nucleus or any part of it. Though observed for nearly two years, the affection remained unilateral, and the iris now reacts slowly with convergence. He did not believe it due to an affection of the intraocular ganglionic cells of the chorioid, and therefore attributed the symptoms to an acute affection of the lenticular ganglion. In such a lesion, motor, sensory, and sympathetic fibres would be interfered with. The circular fibres of the iris would be paralyzed and the accommodation would be lost, while the dilating fibres which receive innervation from other sympathetic sources would be partially paralyzed only. Hence the pupil would remain dilated and inactive to light and convergence for some time, and, if no reparation of tissue took place, perhaps permanently. He thinks that in this case there was an attack of orbital cellulitis which caused the congestion, proptosis, and apparent glaucoma, and at the same time involved and more or less wrecked the lenticular ganglion, so that as soon as the results of the cellulitis had cleared up the more permanent effects came into notice.

Motor Ocular Paralyses due to Lateral Pressure of the Skull.—Panas (*Arch. d'ophthal.*, August, 1894) draws the following conclusions from his observations: 1. The majority of ocular paralyses met with in injuries of the skull are due to fractures at the base. 2. The absence of any sinking in of the bones of the vault does not exclude the existence of fissures at the base. 3. The nerves which are in most intimate connection with the bones, the sixth pair of cranial nerves, are most frequently paralyzed. 4. The pressure comes from the fracture itself or from extravasated blood within the skull. In the first case the paralysis is more or less immediate; in the second it may be postponed.

A Case of Myxoma of the Cornea.—Mitvalsky (*Arch. d'ophthal.*, August, 1894) reports a case of this nature occurring in a woman, aged twenty-six years, dating from infancy. The tumor was a pure myxoma resembling a lobulated polypus, implanted by a slender pedicle at the centre of the cornea. It contained a number of cystic cavities. The cornea was flattened, a staphyloma having been removed some years previously, and thus the base, which gave rise to the tumor, was a mass of cicatricial tissue.

Researches into the Microbic Condition of the Conjunctiva in Persons affected with Ozæna, without Complication of the Lacrymal Passages.—Terson and Gabrielidès (*Arch.

d'ophthal., August, 1894) state that the encapsulated microbe which is so very abundant in the nose of patients suffering with ozæna is also found very often in the conjunctiva of these patients. It is pyogenous for the cornea, and may produce corneal infection. It resembles the pneumo-bacillus of Friedländer. In most of these cases there is absolutely no lesion of the lacrymal passages.

Strabotomy.—Landolt (*Arch. d'ophthal.*, August, 1894) considers the advancement of the antagonistic muscle a much more valuable surgical procedure for the relief of squint than tenotomy of the squinting muscle. Even in cases of simple insufficiency of convergence or divergence, where tenotomy is admissible, the results of the latter are often unsatisfactory, because a considerable portion of the adducting or abducting power is lost. When the squint is excessive, tenotomy is often inconvenient on other grounds. In the operation of advancement, the excursions of the eye are always increased, without any loss in the power of the antagonist. Moreover, both convergence and divergence gain more by this operation than by tenotomy. Finally, the operation of advancement never causes any disfigurement. Tenotomy may be considered in cases of motor insufficiency, latent squint, or squint of a low degree, according to most modern ophthalmologists, but Landolt believes that in all three classes of cases advancement offers greater advantages. It has never in his hands caused an over-correction of the defect. It must, however, be generally done on both eyes.

Bony Tumors of the Orbital Region.—Mitvalsky (*Arch. d'ophthal.*, October, 1894) considers that the clinical features of osteomata of the frontal sinus are sufficiently uniform, and consist chiefly in a bony elevation of the region of the sinus, accompanied by a bony loss in the neighboring orbital cavity and by exophthalmia. The pathological processes in the mucous membrane of the sinus consist in a chronic inflammation with secretion of pus or muco-pus more or less abundant in quantity. This secretion is accompanied by the formation of mucous polypi. The mucous cysts do not remain in the same spot, but are dislodged by the growth of the osteoma. Such a cyst, displaced toward the brain, may cause death by purulent inflammation. An operation for the removal of an osteoma may be undertaken at any stage of its development so long as no pathological changes have occurred in the brain or its membranes.

Tuberculous Iritis.—Vignes (*Rec. d'ophthal.*, April, 1894) draws the following conclusions: 1. Tuberculous iritis must be distinguished from other varieties of iritis. 2. This form of iritis is premonitory of the appearance of tuberculous nodules elsewhere. 3. Its invasion is insidious, slow, and with but little local reaction, but is accompanied by numerous posterior synechiæ. 4. The absence of pathognomonic symptoms makes the diagnosis difficult. 5. The tendency to spontaneous healing of miliary tuberculosis of the iris depends upon the natural resistance of the iris tissue. The encapsulation of the tubercle and the rapid obliteration of its nutrient capillaries favor its isolation and the protection of the healthy tissues.

Monocular Polyopia.—Landman (*Annals of Ophthal. and Otol.*, iii, 1) reports two cases of this affection due to traumatism. The patients did not notice the diplopia immediately after the accident, though it might have existed. In both cases there was convergent squint, in one case of both eyes, and uniocular diplopia in each. Landman thinks the difficulty was in the visual centres, due to a hæmorrhage and clot which was organized and finally absorbed. The centre was subdivided by this act, and it comprehended two or more impressions from one image. The question is whether the physical continuity of a centre may be destroyed with or without destroying its psychical or physiological power. He thinks it possible to conceive of a hæmorrhage forming a line of separation and barrier, preventing impulses from diffusing themselves, and one centre thus dividing itself into two or more. He thinks that uniocular diplopia may be the result of a lesion separating the visual centre within itself, and the peripheral impression being one, and the central two or more.

Description of a New Optometer for the Correction of Astigmatism by Distant Tests.—Weiland (*Annals of Ophthal. and Otol.*, iii, 1) alleges the following advantages for his instrument: 1. The instrument is used for distant objects, thus avoiding the tendency to accommodation so often excited by an artificial punctum remotum. 2. The objects appear of the same size as the test lenses from the trial case in the usual position make them appear. 3. No tube is used that may embarrass the patient and excite his ciliary muscle. 4. It allows of the correction of astigmatism by the direct use of cylindrical glasses. 5. By using in connection with the highest *plus* and lowest *minus* spheres only negative cylinders, we are more likely to get the fullest correction for hypermetropia, and avoid an over-correction in myopia in cases where a mydriatic can not be employed.

A New Instrument for Testing Adduction, Abduction, Exophoria, and Esophoria.—Gould (*Annals of Ophthal. and Otol.*, iii, 1) has devised a "battery" or "pile" of prisms for this purpose. The prisms begin with one-degree lenses upon each side, and increase by integers to twenty degrees, so that with two-degree steps we may test all degrees of adduction or abduction from two degrees to forty degrees. The open central space permits the lenses to be brought close to the eyes without any interference with the patient's nose. The larger handle below allows the first tests to be made with the lower-power prisms, likewise without the handle striking the nose. The lower-power prisms are placed below in order that in testing from lower powers to higher powers the breath of the patient may not cloud the lenses to be used next in order. To test adduction, each battery is placed bases out; to test abduction, each is revolved so that the bases are in. To test exophoria and esophoria the same methods are pursued, the Maddox rod being first placed before one eye in the trial frames. Each battery is revolved at pleasure, being fixed by a pivot mechanism below and temporarily held in the position desired by clutches at the side.

The Conservative Treatment of Muscular Insufficiencies.—Heath (*Annals of Ophthal. and Otol.*, iii, 2) gives the following reasons for a moderately conservative treatment of these cases: 1. The eye muscles are variable in their strength from day to day. 2. Our diagnosis may be wrong. A coincidence may be mistaken for cause and effect, symptoms due to some other cause being attributed to the insufficiency discovered. 3. The difficulty in deciding which is the cause and which the effect in some cases of nervous prostration with insufficiency of one or more eye muscles. 4. Some patients are neurotic by birth and can never be cured. Palliation is all they can ever expect, and radical treatment becomes hardly justifiable. 5. We should first thoroughly understand the effect of refractive errors and their correction. As errors of refraction frequently cause muscular insufficiencies, correction of the former will often relieve symptoms due to the latter. 6. Regulating the effect of an operation is difficult if not impossible. It may be too much, too little, or none at all. 7. Results reported by operators are often due to other things than the operation. 8. Some cases show weakness of all the muscles. 9. Simple measures relieve many cases.

The Treatment of Heterophoria.—Duane (*Annals of Ophthal. and Otol.*, iii, 3) believes that there is no single cure-all for any muscular anomaly. Some cases yield to training of the muscles, some to correction of the refractive error, some to tenotomy, and some are incorrigible. We must first ascertain the nature and cause of the underlying pathological condition, and then apply the method of treatment that is adapted to the state found. We must first find out what the exophoria or hyperphoria means; whether it is spasm or paresis, accommodative strain or anatomical conditions, and then apply the proper remedy.

A New Ophthalmoscope.—Skeel (*N. Y. Eye and Ear Inf. Rep.*, ii, 1) has devised an instrument in which the lenses are arranged as in the Loring ophthalmoscope. The primary disc is mounted on a short pinion, which also carries a pulley. The secondary disc turns loosely on this pinion. An endless chain runs over this pulley and extends downward through the hollow handle to another pulley carried within it at its lower end. A sliding piece extends through a slot in the handle and is attached to the chain. This sliding piece is actuated by the thumb as the instrument is held in the hand. When it is midway in the slot the free aperture is in front of the eye. By moving the sliding piece upward the chain running over the pulley causes the disc to revolve and the successive concave lenses are brought to the aperture. By moving it downward, the successive convex lenses are moved in the same manner.

A Portable Perimeter.—Wilson (*Trans. Amer. Ophthal. Soc.*, 1894) has devised a small perimeter which consists of a metal ring 0 25 millimetre in diameter, with brass pins projecting from it at intervals of thirty degrees. At right angles to this ring is a half ring with projecting spokes at intervals of ten degrees to mark the position of the string used as the radius on the meridian. Projecting toward the centre of this half ring is a post with an eyelet in its end through which passes a piece of suture silk. These three parts, with an ivory handle, complete the instrument. When in use one eye of both patient and observer should be covered. The pupil of the patient's eye, the side of the metal post of the instrument, and the pupil of the observer's eye should be in line. The patient should be asked to open the eye widely just before the metal ring is brought in contact with the lids. It is more convenient, and sometimes necessary, on account of projecting brows, to tip the patient's head back a little, and this, of course, increases the upper part of the field. The length of the swinging radius can be varied with the length of the surgeon's arm. Bits of paper can be threaded on the string and used as markers.

Recent Experiences in the Treatment of Detached Retina.—Bull (*Trans. Amer. Ophthal. Soc.*, 1894) draws the following conclusions from his experience:

1. The science and practice of ophthalmology have as yet discovered no better means for dealing with detachment of the retina than the old methods which have been advised and carried out for so many years—viz., rest on the back in bed, atropine, a bandage, and the internal administration of some drug which may induce absorption of the subretinal fluid. 2. The continual use of pilocarpine, either hypodermically or by the mouth, may cause great prostration, even in cases in which it is apparently well borne; and the desired effect may be sometimes produced by small doses of sodium bicarbonate or potassium iodide largely diluted with water. 3. In all recent cases puncture of the sclera subconjunctivally may do good temporarily by letting out the subretinal fluid and allowing the retina to collapse, thus producing some improvement in the vision; but the apparent improvement is generally transient, and when membranous bands exist in the vitreous no improvement can be expected from simple puncture. 4. Division of fixed membranous opacities in the vitreous causes but little reaction, and may do positive good, even without division of the detached retina, as it reduces the danger of extension of the detachment. It is positively contraindicated in cases where the vitreous opacity is vascularized, as it would certainly induce free hæmorrhage into the vitreous. It should never be done when there is an irritated or inflamed condition. 5. Division of the detached retina may always be done in a quiet eye and causes little or no reaction. If membranous bands are present in the vitreous, these should always be divided at the same time. 6. In most cases all these operative procedures produce but temporary improvement, and in many cases no effect whatever is gained by them. 7. There seems no good reason for further indorsement of the method advocated by Schöler, but every reason for rejecting it from the domain of ophthalmic surgery.

A Refractometer for Skiascopy.—Lambert (*Trans. Amer. Ophthal. Soc.*, 1894) has devised an instrument which consists of two superimposed discs, one of which contains nine convex lenses ranging from + D. 1 to + D. 9, and ten concave lenses from — D. 1 to — D. 10. The other disc contains 0·25, 0·50, 0·75, and D. 10, convex and concave. By means of a gear movement operated by a tube and rod, the latter working within the former, both discs can be revolved either independently or together] with one hand, thus enabling the examiner to rapidly bring the various lenses in front of the eyepiece without changing his position during the examination. On the reverse side of the instrument is an arm carrying the eyepiece, which arm can be swung to either side of the disc, thus adapting the eyepiece to either right or left eye. The arm supports in front a graduated cell, in which a cylindrical lens can be placed at any desired axis, or a slide containing six cylindrical lenses of different foci, which are varied by raising or lowering the slide, while the desired axis is obtained by rotating the cell, and is indicated by a pointer on the scale. In using the instrument in cases of astigmatism, first estimate the refraction of the two principal meridians, employing only the spherical lenses; then, placing the cylinder thus indicated in the cell at the proper axis, repeat the test to insure accuracy.

New Inventions, etc.

AN IMPROVED DEVICE FOR CORRECTING CERTAIN DEFORMITIES OF THE NOSE.

By F. E. Hopkins, M. D.

To correct deformity of the nose whose supporting framework has been destroyed by accident or disease, one must make use of some mechanical contrivance which shall serve as a substitute for the missing parts. The great problem has been to devise a support of sufficient firmness to keep the soft parts in position and which at the same time should be in form and material so little irritating that it might be permanently retained.

To M. Létiévant * belongs the credit of first successfully using a metallic framework for this purpose. He employed aluminum as the material for the supporting bridge, and reported his case at the Medical Congress in Paris in 1878. At his suggestion in 1885, M. Claude Martin, who had done a great amount of work in correcting deformities about the face, constructed a framework of platinum which by its form and material promised firmer support. M. Létiévant made use of this in August of that year with very gratifying results. Modifications of this have been used in this country by Dr. R. F. Weir and others.

While this leaves nothing to be desired so far as restoration of the form of the nose is concerned, there is yet too great a liability to displacement, either from cicatricial contraction or by traumatism. To overcome this difficulty I desire to present the improvement shown in the accompanying cut. This form is the result of suggestions from the members of the throat staff at the Manhattan Hospital, and in the single case in which I have used it it gave admirable results. It is cut from a single sheet of platinum a fiftieth of an inch in thickness, and then molded to fit the individual case. The improvement consists in the greater breadth of the bridge allowing of molding over the nasal bones, and thus preventing lateral displacement and adding greatly to its stability. A V-shaped piece is cut from the centre of the upper end, which reduces weight, allows of more ready molding, and relieves the thin skin over the nasal bones from pressure. Oval perforations are made in the bridge, which again reduce its weight, and the uniting of the tissues through these openings adds materially to its stability. The supporting arms are made much broader and thinner than in the original, that they may hold the alæ in position with the least possible irritation from pressure. These arms are pointed at the ends, and when set into the openings drilled in the superior maxillary the bridge is certainly very firmly fixed in position. The arms are to be made longer than is absolutely necessary, and then cut of suitable length for the individual case at the time of operation. The accompanying cut is full size. The perforations should be made larger than represented.

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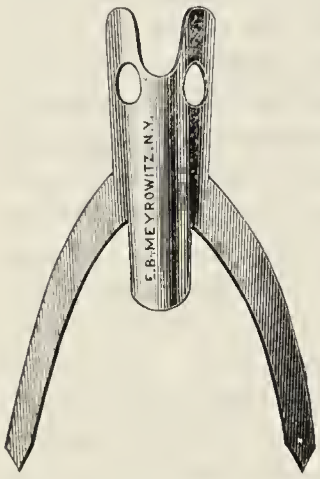
* Martin. *La Prothèse immédiate*, pp. 286, 287, Paris, 1889.



By doing a Rouge's operation one secures ample room to place the bridge properly, and it is retained in position with surprisingly little irritation. The fact that this splint is made entirely of one piece of metal greatly reduces its cost—an item of importance to many patients. This platinum bridge was made for me by E. B. Meyrowitz, to whom I am indebted for giving shape to my ideas.

Miscellany.

A Case of Sclerema Neonatorum ending in Recovery —In the *Lancet* for May 4th there is a report of a case by Dr. Archibald E. Garrod, of London, who says that sclerema neonatorum is so rare a disease, and so seldom ends in recovery, that he thinks it would be of great interest to record the following case, as in the present incomplete state of our knowledge of this and allied conditions the period has not yet arrived when such records are superfluous:

The patient, a male infant aged five weeks, was brought to the out-patient department of the Hospital for Sick Children at Great Ormond Street on November 5, 1894. The mother, a healthy looking woman, stated that this was her third child. Of the other two the elder was strong and well, but the second died in consequence of a fall at the time of its birth. The last pregnancy was preceded by a miscarriage at the third month. The father was said to be healthy. The family occupies three rooms on a first floor and no history of privation was obtained. The infant was born at full term, the head presented, and there was no particular difficulty at the birth except that the hæmorrhage was somewhat excessive. He was a well-nourished and, except in one respect, a healthy child. There was not, and had not been, any rash upon the buttocks or snuffles. The child was being nursed by his mother, who had an abundant supply of milk, which he took regularly and well. The back of the infant presented a remarkable induration, which extended, like a kind of carapace, over almost the entire dorsal aspect of the body, involving the deltoid regions and upper arms, the buttocks, and the thighs down to and including the popliteal spaces. The skin of the face, of the front of the trunk, and of the limbs was perfectly soft and natural. The edges of the indurated area were sharply defined, irregular, and maplike, and there was nowhere any tendency for the hardened parts to merge into the healthy parts. The skin over the affected parts was stretched, but not shiny, and in places exhibited a pink mottling; it could not be pinched up between the fingers; pressure produced no pitting, but merely rendered the surface pale for a time. The distribution of the induration was remarkably symmetrical. The legs could not be fully extended either at the hips or knees, and when extension was attempted the skin in the popliteal spaces became very tense and shiny. There was no swelling, œdematous or other, of the hands or feet. The child was good-tempered, and the examination did not appear to cause it any pain or discomfort. There were no signs of any disease of the heart, lungs, or other viscera, and there was no intestinal disturbance. The urine was not examined. It was stated that the induration upon the buttocks was noticed immediately after birth, and the places were at first of a deep pink color. During the first nine days of life the hardness spread down the thighs, but as far as could be ascertained the extension to the back and arms only took place during the fifth week, just before the infant was brought to the hospital, by which time the color of the affected parts had become much paler than formerly. No history of any surface exposure to cold air or water could be obtained. Inunction of a drachm of cod-liver oil night and morning was prescribed. On November 12th, a week later, the induration in the dorsal and lumbar regions was rather less marked, but there was no noticeable change in other parts, except that the redness had practically disappeared. The general health continued good, the infant sleeping and taking his food well. There was no coldness of the skin or extremities, and the temperature taken in the rectum was 98·2° F. On this date inunction of blue ointment was ordered in place of the cod-liver oil. By November 19th there was decided improvement in the local condition. The skin of the back, although it appeared stiffer than that of the normal parts, no longer exhibited marked induration; the hardness in the deltoid regions had disappeared, but a small patch remained upon each upper arm. The hardness of the buttocks and backs of the thighs—*i. e.*, of the parts first affected—was as distinct as ever, but had somewhat diminished in extent, and the hidebound condition in the popliteal spaces was less marked. It was a noteworthy fact that as the induration cleared up it did not merely shrink at its borders, but isolated patches were left which had become detached from the main area. Moreover, no pitting could be elicited in the regions in which the affection was clearing up. On November 26th further improvement was evident. A very small patch of induration was noticed in the left parotid region, which had probably been previously overlooked. On November 29th the rectal temperature was 99°, and the induration had still further diminished in extent. On December 13th there were still isolated patches upon the upper arms and extensive induration over the buttocks. On this date the inunction of mercurial ointment was stopped, and that of cod-liver oil was ordered to be resumed. On January 31, 1895, there was only a small patch of induration upon the outer surface of each thigh and the child could extend its legs well.

The arms and back were entirely free. By March 14th the induration had completely disappeared; there was a slight cough but no abnormal signs were detected in the chest. The infant was good-tempered, well nourished, and slept and took the breast well. On April 18th the child weighed fifteen pounds and three quarters. The temperature in the rectum was 99·4°.

From the typical cases of sclerema neonatorum, upon which the descriptions contained in the text-books are mainly based, says the author, this case presents certain well-marked differences, which, after all, are differences of degree rather than of kind, and which may be briefly summed up as follows: 1. The child, instead of being weakly at birth, was, with the exception of the local condition, in excellent health; and he had not suffered at any period of his brief existence from any pulmonary or intestinal disorder. 2. The temperature as taken in the rectum was at no time exceptionally low, whereas in severe cases the depression of temperature is one of the most conspicuous phenomena of the disease. The rectal temperature of 98·2° in the earlier stages probably indicated some depression, for it is stated that in young infants the temperature is as a rule over 99°, and on later dates the temperature was always somewhat higher in this case. 3. The induration after spreading in the earliest weeks of life became arrested, and instead of succumbing to the disease the patient made a steady and complete recovery. Now the only recognized condition with which sclerema is apt to be confounded is the œdema sometimes observed in newly born infants. There is no doubt that these two phenomena have frequently been confounded, and such confusion permeated the earlier literature of the subject until Parrot clearly distinguished between them, pointing out that Andry and other French authors had applied Underwood's name of sclerema to a quite different condition from that which he intended it to designate. Those who are interested in this question, says Dr. Garrod, will find the differences between sclerema and œdema neonatorum clearly set out in Henoch's work on the diseases of children, and in a paper by Dr. Ballantyne. In their general condition infants which are the subjects of sclerema and of œdema are apt to resemble each other somewhat closely, but the integuments of œdematous infants usually pit on pressure, although when there is great tension of fluid this character may be to a great extent wanting. Again, whereas sclerema tends to begin upon the dorsal aspect of the body and legs, and thence to spread to the remainder of the surface, œdema is apt to appear in the hands and feet, and at an early period involves the abdominal walls and the scrotum or the labia. The author does not think that this case was one of œdema, for the following reasons: 1. There was no evidence of syphilitic taint in the child, and the history of a miscarriage preceding the pregnancy hardly suffices as evidence of this disease. There was no evidence of erysipelatous inflammation, of visceral lesions, or of any recognized cause of œdema. 2. The distribution of the hardness and the manner in which it cleared up, leaving isolated patches which persisted for a long time, seemed strongly opposed to the diagnosis of œdema. 3. The absence of pitting on pressure, even in parts in which the induration was disappearing and the tension could no longer be excessive, seems incompatible with such a diagnosis. Evidently, says the author, the case is one of a group tending to recovery, all more or less closely resembling each other, and, while differing in certain respects from the typical examples of sclerema, exhibiting still more conspicuous differences from the œdema of the newborn as it ordinarily presents itself.

The Treatment of the Diseases of the Heart.—In the May number of the *Edinburgh Medical Journal* there is an interesting article on this subject by Dr. Byrom Bramwell in which he sums up his personal experience as to the value of individual remedies which he has found most useful in the treatment of cardiac cases.

In many forms of cardiac disease, he says, rest is the most important means of treatment at our command. It is indicated in the following affections: Acute endocarditis; myocardial degenerations of all forms (fatty and fibroid); all cases in which there is reason to suspect myocarditis, whether acute, subacute, or chronic; pulmonary lesions with an engorged condition of the right heart; valvular lesions with decided breakdown of compensation; cases of angina pectoris in which there is reason to suspect organic disease; aneurysms of the thoracic aorta and large blood-vessels; and all severe cases of senile degeneration of the heart. Exercise is a very valuable means of treatment in many cardiac conditions, more particularly in neurotic affections, fatty infiltration, many gouty conditions in which there are no marked degenerative changes and arterial lesions, many valvular lesions, so long as the myocardium is fairly healthy, some dilated conditions of the heart in which the dilatation is associated with fatty infiltration or the result of such conditions at excessive beer drinking, and in which it is not associated with any marked degree of myocardial degeneration. In many cases of aortic and mitral disease, in the less severe forms of senile heart, and in the slighter forms of myocardial degeneration, judiciously regulated and moderate walking is invaluable, so long as the compensation is well maintained. By muscular exercise, says the author, we are enabled to promote the condition of the general health and of the cardiac health, to hasten the circulation through the peripheral organs and through the heart itself, and to prevent stasis and engorgement with all their disastrous results. So long as exercise, says the author, does not produce any untoward symptoms, it should be allowed and encouraged. Oertel's plan of treatment is chiefly used, he thinks, in cases of fatty infiltration, fatty and gouty conditions not associated with atheroma and without any marked degree of high pressure in the peripheral system of vessels. The author has had no direct personal experience with Schott's method, but from what he has learned from the experience of some patients he is disposed to think that it is chiefly valuable in the same group of cases and in cases of valvular lesions in which the cardiac muscle is reasonably sound. Dr. Bramwell says that he attaches the greatest importance to sustaining the mental tone of the patient. In many cases of cardiac diseases there is, he says, no tonic which is more efficacious than a favorable opinion confidently expressed. It is especially valuable in neurotic cases and in all forms of functional disease, and in the less severe forms of valvular lesion in which the valvular defects are well compensated for or in which the organic changes in the heart are associated with a nervous and irritable condition.

With regard to the employment of drugs, Dr. Bramwell recommends the following: 1. Iron is an invaluable remedy in those forms of cardiac disease in which there is a deficiency of hæmoglobin. The most efficacious form is Robertson's Blaud's capsules. 2. Arsenic is a valuable remedy. It is especially useful in cases of myocardial degeneration and in neurotic cases; it is also useful in many cases of angina pectoris. In many cases of valvular disease in which there has been any decided breakdown of compensation, particularly in cases of aortic regurgitation, it is a most valuable tonic. 3. Strychnine is one of the most valuable cardiac remedies which we possess for the purpose of producing both a sustained tonic effect and more active stimulation. Dr. Bramwell has found it very valuable in cases of valvular disease before there has been a decided breakdown of compensation, and during a temporary breakdown in which there are bronchial or other pulmonary complications, especially when given subcutaneously in frequently repeated doses, with or without inhalations of oxygen. 4. Digitalis is a cardiac tonic which the author uses when symptoms indicating failing compensation are developed, for the purpose of producing immediate and temporary effects, tiding the patient over acute complications, also with the object of permanently sustaining the cardiac power and preventing further breakdowns of compensation. It is most useful in mitral lesions, especially in mitral regurgitation with dropsy, irregular pulse, scanty urine, etc. It should be given more cautiously and for shorter periods of time in cases of aortic regurgitation, and in such cases it can not be expected to produce such satisfactory results as in cases of mitral regurgitation. Dr. Bramwell thinks that in some cases the employment of digitalis is attended with risk in fatty conditions of the cardiac muscle. He has seen one case of fatty degeneration in which rupture occurred during a course of digitalis, and he was inclined to think that the rupture was the result of the administration of this drug. He rarely gives it in chlorotic cases or where there is fatty degeneration due to disease of the coronary arteries; but he has found it of great use in cases where the grave cardiac symptoms seemed to be the result of a degenerated condition of the myocardium and in which the degeneration was the result of chronic myocarditis or fibroid degeneration. Where the pulse tension is high the author usually prescribes strophanthus in preference to digitalis. Under such circumstances, if digitalis is given, it should be combined with potassium iodide, sodium salicylate, or some remedy, such as nitroglycerin, which reduces the blood pressure. Dr. Bramwell always gives digitalis in the form of tincture or infusion. He never uses digitaline granules; he has seen, he says, decided poisonous symptoms produced as a result of the administration of Nativelle's granules. 5. Strophanthus is of great value in those cases in which it is desirable to produce a rapid tonic and stimulating effect. In such cases the author often combines it with subcutaneous injections of strychnine, and, in many cases in which there are grave pulmonary and bronchial complications, with inhalations of oxygen. Strophanthus is useful also in some cases in which digitalis, owing, perhaps, to some idiosyncrasy of the patient, disagrees. It is preferable also in cases where the peripheral arterial pressure is increased. 6. Alcoholic, ammoniacal, and ethereal stimulants are of great use for the purpose of relieving urgent symptoms and warding off asystole. Where there is vomiting, brandy and champagne are the most useful. Many persons, says Dr. Bramwell, who are suffering from chronic cardiac disease, who have all their lives been accustomed to the use of alcohol, are, in his experience, the better for a strictly moderate amount of alcoholic stimulant; in many cases of this kind it seems to help digestion; as a rule he gives whisky, well diluted, with meals. In functional and neurotic cases burgundy is often a useful form of wine. 7. Oxygen inhalations are of the greatest use in many very urgent conditions, especially where there is bronchitis, pneumonia, or pulmonary apoplexy. 8. Potassium iodide is an invaluable remedy in aneurysm and in many cases of angina pectoris. In combination with digitalis it is a most important remedy in some of the so-called cases of senile heart. It has also appeared to be useful where there is chronic myocarditis or fibroid degeneration. In some cases in which cardiac lesions or symptoms were associated with symptoms of tertiary syphilis, potassium iodide has seemed to exert a beneficial effect upon the cardiac condition. 9. Sodium salicylate is another remedy from which the author has seen the greatest benefit result in gouty cases associated with cardiac symptoms. 10. Nitroglycerin and nitrite of amyl are the remedies which he uses for the purpose of producing a rapid lowering of the blood pressure. He thinks they are more reliable and safer drugs than nitrite of sodium. 11. Menthol, given in combination with aromatic spirit of ammonia and spirit of chloroform, is a most useful remedy in many cases of flatulent distention of the stomach—a condition which is often the cause of cardiac embarrassment and sometimes of sudden, alarming, and even fatal nocturnal dyspnœa, with or without angina pectoris. A sixth or a quarter of a grain of solid menthol dissolved in half a drachm of spirit of ammonia and half a drachm of spirit of chloroform is the usual dose. 12. Purgatives are useful in many cardiac affections, especially in mitral cases attended with dropsy, and in cases in which the right side of the heart is overdistended and embarrassed, and the organs and tissues are engorged and water-logged.

In the mechanical removal of dropsical effusions, says Dr. Bramwell, beneficial effects may be obtained by frequently repeated tappings in some cases of ascites due to organic cardiac disease, resulting hepatic cirrhosis, and portal engorgement. In cases of hydrothorax the results have, as a rule, been merely temporary and often unsatisfactory. He rarely resorts to puncturing the legs or the scrotum until other measures have failed to remove or lessen the œdema; consequently, in his experience, draining the subcutaneous tissues has rarely been attened with any marked or lasting benefit. Massage, he thinks, is a more useful remedy than tapping in many cases of subcutaneous dropsy; it aids the venous and lymphatic return, and quickens the circulation in the muscular and peripheral tissues of the body. It is also of great use in many cases in which, owing to the nature of the lesion, ordinary muscular exercise is contraindicated. Venesection is undoubtedly, he says, valuable in many cases in which the right heart is greatly distended and engorged, and it is particularly useful where the engorgement depends upon temporary lung complications superadded to mitral disease. Dry cupping is very useful for the relief of congestion of the lungs and other pulmonary and kidney complications.

With regard to the soporifics, says Dr. Bramwell, the most useful are chloralamide, paraldehyde, and morphine. In cardiac cases sulphonal is much less certain in its action than chloralamide, and in grave cardiac affections he has almost entirely given up the use of chloral hydrate, on account of the marked depression which it is apt to produce. Paraldehyde is especially useful in those cases where there is bronchitis, and in which morphine is contraindicated. After the breakdown of compensation and in the ultimate restlessness in cardiac cases, small and frequently repeated doses of morphine are often invaluable. The author has seen a marked benefit, even in cases where there was albumin in the urine, result from the administration of the drug, and he thinks that, on the whole, it is the most reliable sedative and soporific. It is an invaluable remedy in some cases of angina pectoris where nitrite of amyl fails to give relief or is contraindicated; for example, where the blood pressure is low and where there is free aortic regurgitation. Morphine should never be given where there is œdema of the lungs or much bronchial secretion, for disastrous results have followed its administration under those circumstances.

The Therapeutic Uses of Guaiacol.—In the *Presse médicale* for April 20th there is an article on this subject in which the writer says that, although the therapeutic history of guaiacol has been known for the past few years, yet the only clinical observations on which any reliance can be placed with regard to its rational employment are of quite recent date. Formerly the guaiacol used was extracted from various kinds of creosote, impure products which were more or less charged with phenol, and consequently likely to give rise to accidents. Since 1893 we have possessed a pure product, perfectly definite, obtained by synthesis by M. Béhal and M. Choay. It is the synthetic crystallized guaiacol which should replace the liquid guaiacols in the materia medica. It is the same, moreover, which was used during the present year by M. Linossier, M. Lannois, M. Guinard, and others in experiments, on the results of which we can rely to illustrate the therapeutic value of guaiacol for external and internal use.

With regard to the internal use of guaiacol, says the writer, it is generally well borne by the stomach owing to its local anæsthetic action. It may be given by the mouth or hypodermically. When given by the mouth, the dose is from 1·6 grain to eight grains during the twenty-four hours in pills containing from 0·8 to 1·6 grain, in capsules containing the same quantity of guaiacol in an oily solution, or in alcoholic solutions, as, for example, the following: 1. Guaiacol, a hundred and fifty grains; rum, four hundred and fifty grains; distilled water, six ounces and a half. From eight to ten teaspoonfuls of this may be taken every day in milk or water. 2. Guaiacol, a hundred and fifty grains; vin de Bagnols, thirty-three ounces. From one to three dessertspoonfuls may be taken during the day.

When administered hypodermically, smaller doses are used; from 1·6 to four grains of guaiacol, dissolved in perfectly sterilized and neutral olive oil. A one-to-five solution is generally used, but equal parts may be employed. Guaiacol may be used in the following affections: 1. Pulmonary phthisis. It seems to be especially indicated in cases where the progress of the phthisis is sluggish, succeeding the period of softening with abundant expectoration. It should be handled prudently in erethetic phthisis with a tendency to congestion and hæmoptysis, and in tuberculosis in the beginning. The drug should be given, according to the condition of the digestive canal, by the mouth or hypodermically. The hypodermic injections of Weill and of Diamantberger are preferred in the beginning by certain clinicians. Weill employed the following formula: Crystallized guaiacol, seventy-five grains; sterilized oil, 3·25 ounces. From two to three syringefuls of this solution may be injected every day. 2. Chronic bronchitis, dilatation of the bronchi, fœtid bronchitis, and pulmonary gangrene. In three cases of pulmonary gangrene Weill obtained very good results with hypodermic injections of guaiacol. The solution should be more concentrated than that used in phthisis; for instance, fifteen grains of guaiacol and a hundred and fifty grains of sterilized oil. In pulmonary gangrene, according to M. Lop, from one to four syringefuls may be injected every day. The same procedure and the same doses have been successfully tried in fœtid bronchitis and in dilatation of the bronchi with sphacelus of the mucous membrane. In chronic bronchitis and in dilatation of the bronchi Grainger Stewart recommends guaiacol not only in hypodermic injections, but in intralaryngeal injections. He employed the following solution: Crystallized guaiacol, two parts; menthol, ten parts; sterilized olive oil, eighty-eight parts. Sixty grains of this were injected into the larynx twice a day. M. Naught also employed this method in fœtid bronchitis with good results. Moreover, says the writer, all laryngologists at the present day use guaiacol for direct injections into the larynx and the trachea. 3. Purulent pleurisy. In this affection Robertson employed injections of guaiacol with very good results. He found that they were efficacious in diminishing the purulent secretion after empyema.

In the external use of guaiacol, says the writer, painting has become a common practice, and it is as important as the hypodermic injections or its administration by the mouth. It has been used pure or with equal parts of sterilized olive oil or glycerin. For the first painting thirty grains of this oil solution should not be exceeded, as stronger doses have occasionally provoked symptoms of agitation and collapse. The solution should be applied over a rather large surface, about 0·20 centimetre square. The preferred regions may be the forearm or the calf of the leg. Guaiacol has also been employed in combination with tincture of iodine and vaseline. Painting with this drug has been used in the following affections: 1. Tuberculosis. In this disease the paintings seem to have a powerful antipyretic action. In miliary tuberculosis and in the acute attacks that occur during the course of chronic tuberculosis, according to Bard, Courmont, and Boix, guaiacol gives the most remarkable results. Boix reported several cases where not only small doses resulted in rapid and intense effects on the fever and on the general condition, but the effects were apparently lasting and definitive. In several cases there were bacilli in the sputum. The drug should not be used in the treatment of very feeble persons in the last stage; moreover, it has no action on the hectic fever of this period. 2. Typhoid fever. Montagnon employed in this disease paintings with guaiacol over the inguinal region when the temperature was high, and he was able to combat the hyperthermia in twenty patients. Eight grains were used at a time, and not more than thirty grains during the day. With repeated paintings Moisy was able to maintain an almost normal temperature, and he noticed that the antithermic action of the drug seemed to increase. Chéron, however, pointed out the dangers that might follow a too prolonged use of the drug, owing to the insufficient renal elimination of guaiacol. Montagnon recommends the use of guaiacol especially in cases where the cold bath is contraindicated. Desplats also obtained very good results in typhoid fever with guaiacol. 3. Pleurisy. In this affection Miron Sigaléa painted the entire affected side twice a day with the following mixture: Guaiacal, forty-five grains; glycerin and tincture of iodine, each, three hundred grains. He has also seen this treatment succeed in recurring effusions after a first thoracentesis. In these cases the guaiacol appeared to have a diuretic effect, which was also observed in a case of scarlatinous nephritis with anasarca and anuria. Desplats also found this diuretic action in typhoid fever and in typhus. 4. Infectious pyæmia. In influenza, pneumonia, rheumatism, etc., painting with guaiacol has an ordinary antipyretic action. In intermittent fever Kohos moderated the attacks in the beginning by injecting a mixture of guaiacol and lanolin over the spleen. In erysipelas of the face the paintings, according to Bard, may diminish the intensity and gravity of the affection. In all affections where the renal elimination may be insufficient the administration of guaiacol should be cautiously made and its action carefully watched. 5. Pultaceous angina and amygdalitis. According to Darboue, Raymond, Rhodes, and others, pharyngeal paintings give very good results in combating not only the fever, but the pain. The glycerin solution is preferable to the oily solution, and, for an adult, the two ingredients are prescribed in equal parts. For children, however, the dose should be weaker, one part of guaiacol and three of glycerin, and its action closely watched. The first burning is sharp and the taste rather disagreeable, but the relief is rapid. The difficulties of deglutition are very much diminished. 6. Neuralgia. Painting with guaiacol seemed to give good results in sciatica, in intercostal neuralgia, and in coxalgia. Balzer employed the following ointment in blennorrhagic orchitis: Guaiacol, seventy-five grains; vaseline, four hundred and fifty grains. In the very painful forms he applied the first painting over the abdomino-inguinal region with from thirty to forty-five grains of pure guaiacol, and after the first sharp burning relief generally occurred at the end of about half an hour.

These, says the writer, are the affections in which guaiacol has been employed. The dominating action of the drug is antithermic. This has been observed especially in cases of tuberculosis, although this action of the drug is successful in other pyrexiæ. The analgetic action of guaiacol must not be overlooked, for it has rendered great service in certain painful affections in the treatment of which we have often been powerless to combat the element of pain with other drugs.

Naphthaline in the Treatment of Worms in Children.—The *Revue internationale de médecine et de chirurgie pratiques* for April 25th contains an abstract of an article by Dr. Aurel Schmitz, which was published in the *Jahrbuch für Kinderheilkunde.* The author enumerates the principal symptoms caused by the presence of these intestinal worms and cites the opinions of authors who have demonstrated that it is not in the rectum or even in the large intestine generally that these worms are habitually found, but in the upper part of the intestinal canal, and that local treatment by the rectal canal rarely attains the purpose for which it is employed. Naphthaline, being a very energetic antiparasitic and possessing at the same time the property of being insoluble in water, may thus, introduced through the stomach, pass through the intestinal canal without being decomposed. These qualities, says the writer, suggested to Ungar the idea of employing naphthaline in the treatment of worms, and he related the results of his researches to Dr. Schmitz, who employed the method in the following manner: After having purged the patients several times he prescribed from eight to ten capsules of naphthaline in doses of from 2·4 to 6·4 grains and more, according to the age of the child. Four of these capsules were taken during the day. Eight days afterward the same dose was repeated, and after a second interval of fourteen days a third dose was taken. In some rare cases, he says, a fourth dose may have to be given. The naphthaline should not be given immediately after meals, and oily or fatty food should be avoided, in order not to cause decomposition of the drug in the digestive canal and thus hinder its action. If it causes constipation a purgative should be given. In forty-six cases in which this treatment was used, twenty-six children were completely cured. In twenty other cases the results were less favorable; the symptoms were ameliorated, but there was no definitive cure. In three of the cases the return of the symptoms was so long delayed that they were thought to be cases of reinfection. In cases where success is doubtful Dr. Schmitz recommends repeating the treatment after an interval of several weeks, as the organism of children tolerates repeated doses of naphthaline very well. In one case only it caused strangury, but the symptoms were slight and transitory. The action of naphthaline is always more certain than that of santonine, and it is much less toxic. In all the cases treated enemata were not administered, but the administration of naphthaline through the stomach may be combined, with good results, with deep irrigations, according to Hegar's method, especially when the patients suffer greatly from parasites that have penetrated deeply. Ungar employed for these irrigations aluminum acetate in the proportion of a dessertspoonful to eleven spoonfuls of water. This astringent liquid kills the parasites situated in the deep parts of the digestive canal very quickly and allays the irritation of the intestinal mucous membrane.

The American Laryngological Association will hold its seventeenth annual congress in Rochester on June 17th, 18th, and 19th, under the presidency of Dr. John O. Roe, of Rochester. The programme includes the following papers: Foreign Bodies in the Œsophagus, by Dr. Harrison Allen, of Philadelphia; Desiccated Thyreoids in Goître, by Dr. E. Fletcher Ingals, of Chicago; The Influence of Chronic Diseases of the Throat upon Certain Defects of Speech, by Dr. D. Bryson Delavan, of New York; Electrolysis by a Current Controller for the Reduction of Spurs of the Nasal Sæptum, by Dr. W. E. Casselberry, of Chicago: Is Acute Amygdalitis in any way Dependent upon the Rheumatic Diathesis? by Dr. George B. Hope, of New York; Some Remarks on the Removal of the Tonsils—A Case of Lipoma of the Larynx, by Dr. J. W. Farlow, of Boston; A Case of Melancholia Cured by Intranasal Operation—A Case of Suppurative Ethmoid Disease followed by Invasion of the Sphenoidal Sinus, Abscess of the Brain, and Death, by Dr. F. H. Bosworth, of New York; A Consideration of Some of the More Important Principles of Intranasal Surgery, by Dr. W. K. Simpson, of New York; Ludwig's Angina, by Dr. J. E. Newcomb, of New York; a discussion on Tuberculosis of the Upper Air-passages, by Dr. Jonathan Wright, of Brooklyn, Dr. C. C. Rice, of New York, Dr. E. L. Shurly, of Detroit, and Dr. J. W. Gleitsmann, of New York; Cyst of the Maxillary Sinus, by Dr. Charles H. Knight, of New York; A Case of Abscess of the Frontal, Ethmoid, and Maxillary Sinuses, by Dr. J. H. Bryan, of Washington; Necrosis of the Middle Turbinate—Congenital Osseous Stenosis of the Naris, by Dr. A. B. Thrasher, of Cincinnati; A Naso-pharyngeal Cyst—An Oro-pharyngeal Cyst—Fibroma Papillare, or True Papilloma, of the Nasal Sæptum, by Dr. Jonathan Wright, of Brooklyn; a discussion on The Relation of Vaso-motor Disturbances to Diseases of the Upper Air-tract, by Dr. F. H. Bosworth, of New York, Dr. W. H. Daly, of Pittsburgh, and Dr. J. N. Mackenzie, of Baltimore.

Smoker's Vertigo.—At a recent meeting of the *Congrès des sociétés savantes*, a report of which appeared in the *Progrès médical* for May 4th, M. Kohos said that vertigo caused by nicotine was very frequently observed, and that it manifested itself sometimes under the form of a slight acute poisoning accompanied with pallor, salivation, cold sweats, headache, vertigo, staggering, etc., which symptoms were produced in those who smoked for the first time; sometimes the poisoning was more serious, as, for instance, in the case of a man who had smoked twenty-five pipes on a wager, who suffered for many months with vertigo. The vertigo of chronic intoxication from tobacco, he said, might be observed in the workmen and workwomen in tobacco factories, as well as in smokers, in snuff-takers, and in those who chewed tobacco. The action of nicotine varied according to the amount absorbed, and the disturbances caused in the life of the cells in consequence of their contact with the poison might also be variable.

M. Le Roy de Méricourt remarked that he had never observed smoker's vertigo in Brittany or in certain other countries in which he had lived for a long time, but he had observed a tendency to syncope dependent upon disturbances of the circulation following intoxication with the ordinary tobacco.

The Intermediary Nerve of Wrisberg.—At a recent meeting of the *Académie des sciences*, a report of which is published in the *Gazette médicale de Paris* for May 4th, M. A. Cannieu remarked that the nerve of Wrisberg had been the subject of much discussion. According to some authors, it was a motor nerve; to others, a sensory nerve. In 1878 M. Mathias Duval had made out an aberrant branch of the glosso-pharyngeal nerve toward the sensitive centre to which, according to him, the intrabulbar fibres of this nerve were directed. Having made some researches, said M. Cannieu, on the internal ear, he had observed certain facts which enabled him to confirm this interpretation. Thus, among rodents he had ascertained the existence, which had been denied up to that time, of the intermediary nerve of Wrisberg; on the other hand, among bony fishes he had seen the cellular extensions united in bundles which, he said, should be considered homologous to the intermediary nerve of Wrisberg and as an aberrant branch of the glosso-pharyngeal nerve.

THE NEW YORK MEDICAL JOURNAL, June 15, 1895.

Lectures and Addresses.

A CASE OF
FILARIA SANGUINIS HOMINIS,
WITH CHYLURIA,
TREATED SUCCESSFULLY WITH METHYLENE BLUE.*

By AUSTIN FLINT, M. D., LL. D.,

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My election to the presidency of the New York State Medical Association for 1895 carries with it the honor of presiding over the meeting of the Fifth District Branch. My thanks for this evidence of confidence and regard on the part of the fellows of the State association can be more appropriately expressed on another occasion. At this meeting I shall content myself with endeavoring to add a little to the value and interest of your proceedings by reporting an unusual case with a novel method of treatment. I beg that you will accept this small contribution as an evidence of my appreciation of the privilege of presiding over your deliberations and discussions to-day.

I find in my records of thirty-three years ago (March 20, 1862) brief notes of an examination of a specimen of chylous urine sent me by the late Dr. Isaac E. Taylor. About two years later I had an opportunity of examining another specimen from the same patient, the urine still being chylous. I have no notes of the history of this case beyond those of the examinations of the urine; and I regarded it simply as a curious observation. In the works on urinary diseases, a number of cases of chylous urine had been reported with no very definite ideas of the pathology or the therapeutics of this condition. Nearly if not all these cases had resisted a great variety of measures of treatment. It was stated by all writers, however, that chylous urine was peculiar to tropical countries.

Before 1868 I did not keep a full record of my urinary examinations, but I had never seen a case of chylous urine before I examined the specimens sent to me by Dr. Taylor. I now have records of examinations of urine of eight hundred and twenty-eight patients in private practice since 1868. During fourteen years' experience as medical examiner for a life insurance company (1871 to 1885) I examined the urine of about two thousand applicants for insurance, who supposed themselves to be in perfect health. I never met with an instance of chylous urine, except in a specimen which I examined in March, 1894, in probably more than three thousand examinations.

The pathology of chyluria and its relations to the *Filaria sanguinis hominis* was first described by Timothy Richards Lewis, Surgeon Major, H. M. Army, in an article entitled On a Hæmatozoon Inhabiting Human Blood; its Relations to Chyluria and other Diseases. Calcutta: Government print, 1872. A more complete account is given by Lewis in Quain's *Dictionary of Medicine*, article Chyluria. In 1861–'62, Dr. Vandyke Carter attributed chyluria to a direct admixture of chyle and urine, "a leak from the lymphatic tract into the urinary." In 1870, Lewis found, in a specimen of chylous urine, "numerous microscopic nematoid worms in a living condition"; and in 1872 he found a number of the same worms "in a state of great activity on a slide containing a drop of blood from the finger of a Hindu." In recent works on pathology, the parasites are described as larvæ of "*Filaria Bancrofti*, a threadlike worm, eight to ten centimetres long, which inhabits the lymphatics of the scrotum and lower extremities, and is said to cause lymphstasis, with œdema and a thickening of the tissue of the nature of elephantiasis, or lymphatic abscesses, chylous hydrocele, and chylous ascites. The ova or larvæ—the *Filaria sanguinis*—pass from the lymphatics of the scrotum and extremities to the rest of the lymphatic system and to the blood (into the latter, however, for the most part, only during rest at night), and may then give rise to hæmaturia, chyluria, and chylous diarrhœa" (Weichselbaum, *Pathological Histology*, London, 1895, p. 180). The larvæ found in the blood are in active movement and have "a length of 0·34 millimetre and a breadth of 0·0075 millimetre, a rounded-off head with a tonguelike process, and a pointed tail."

It is stated by all observers that in patients affected with *Filaria sanguinis* the parasites disappear from the blood during the daytime and reappear at night; but when the patient sleeps during the day and is active during the night, the parasites appear in the daytime and are not found at night. According to universal experience the results of treatment have been unsatisfactory.

On March 3, 1894, I received from Dr. Joseph N. Henry, of New York, a specimen of chylous urine. I made an examination of this urine with the following result:

The specimen was white and opaque, like milk, with a very slight reddish-yellow tinge. The reaction was acid and the specific gravity 1021·5. There was no urinous odor. A portion of the urine agitated with an equal bulk of ether became nearly clear. The specimen contained thirty-nine per cent. in volume of albumin. The albumin being removed and the urine filtered through animal charcoal, the filtrate was found to contain 7·25 grains of urea per fluidounce. There was no sugar. On standing for twelve hours, there was a whitish sediment streaked with red. Microscopical examination revealed minute fatty granules, red blood-corpuscles, a very few oil globules, a very few leucocytes, and bacteria.

I reported to Dr. Henry that the specimen was chylous urine, probably from a native of the tropics, and associated with *Filaria sanguinis*. Dr. Henry invited me to see the patient, and has sent me a history of the case.

Having had considerable experience in the use of methylene blue in malarial disorders, and in view of the action of this remedy on the *Plasmodium malariæ*, it occurred to me that it might have a similar effect upon the filaria. I accordingly suggested to Dr. Henry to give the patient two grains of methylene blue every four hours during the day, and to note the effect upon the patient and upon the parasite.

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* President's address, Fifth District Branch of the New York State Medical Association, eleventh annual meeting, May 28, 1895.

The following history was sent to me by Dr. Henry:

J. H., born in the isle St. Kitt's, West Indies, twenty-two years old, colored, well developed and muscular; occupation, bar porter; ten months in this country; family history good; never ill before; presented himself to me, March 2, 1894, with the following symptoms: Headache, pain in the small of the back, one degree elevation of temperature, with a history of rapid emaciation and muscular weakness. He handed me a specimen of his urine, which looked like rich milk, being perfectly opaque, with no tendency to precipitation. Chemical examination showed the following: Specific gravity, 1·014; reaction slightly acid; after filtration, approximately two per cent. of albumin; no sugar. Upon agitation of the urine with ether it became perfectly clear, demonstrating the presence of emulsified fat in large quantity. Microscopical examination showed large quantities of finely divided fat globules, chyle corpuscles, and a considerable quantity of apparently broken-down matter. No casts were discovered, but there were a few blood-corpuscles. From the foregoing history and symptoms I arrived at the conclusion that the patient was suffering from chyluria, a disease which is seldom found in the temperate zone, but is more or less frequently found in tropical or semi-tropical countries, my attention having been called to it by a case which I saw in Singapore some years ago, the disease being due to the fact that the lymphatics become the habitat of one or more animal organisms known as *Filaria sanguinis hominis* (this condition was first described by Lewis in 1872), and that the embryos are thrown out in large quantities into the blood current. I immediately began a series of examinations of the patient's blood. My first examination was made at the man's home on March 3d, at 12.30 A. M., it being a well-recognized fact that the embryonic filaria is rarely if ever found during the daytime in the blood of the sufferer, unless through his occupation he inverts the usual order of his life and works during the night; then they may be found in the blood during his period of rest from physical and mental labor—that is, during the day. I first took one specimen of blood from the right ear, placing it under a one-eighth-inch objective. I found in each field of the microscope an average of ten embryonic filariæ. Their diameter was that of a blood-corpuscle, their length being from forty to fifty times their diameter. Their movements were extremely rapid, twisting and turning and quickly moving out of the field of vision. They seemed to have a well-marked head, a cylindrical and striated body, terminating in a filament-like tail.

"On the following day I called the attention of Dr. Austin Flint and Dr. Austin Flint, Jr., to the case. Dr. Flint suggested the use of methylene blue in the treatment. On March 5th I administered to the patient two grains of methylene blue, and repeated it at intervals of four hours during the day. The same night, at eleven o'clock, the doctors Flint and I examined the blood with the microscope, and, after searching four slides carefully, we were able to discover but two filariæ, they being extremely sluggish in their movements at that time and stained a decided blue, as was also the blood plasma to some extent. The urine in the meantime had entirely lost its milky and turbid appearance and had become perfectly transparent, but deeply stained with the characteristic greenish blue. The treatment was then discontinued, the blood being examined during the 8th and 11th of March without finding any traces of the embryonic filariæ. On March 12th the urine had lost its blue color and again become milky. On the night of March 13th microscopical examination revealed the embryonic filariæ in considerable number; but at the same time there was considerable aniline staining, and their movements were much more sluggish than they were when I first had occasion to examine the blood. On that night I was accompanied by Dr. D. H. McAlpin, who took a specimen of blood to the Carnegie Laboratory for micro-photography.

"On the following day the patient was again given the methylene blue, and on the third day thereafter the blood was examined for the organisms. Several dead and partially disintegrated filariæ were found deeply stained with blue. The urine had entirely cleared, being found normal on chemical and microscopical examination, except its deep blue stain. The treatment was discontinued at the expiration of five days, and, despite the fact that repeated microscopical examinations have been made, the embryonic filariæ have up to the present time (April, 1894) not reappeared. The urine remains normal, the patient having regained apparently perfect health."

The effects of the methylene blue in this case were decided and prompt. After the administration of two grains every four hours during the day on March 5th, the parasites were very few at 11 P. M.; the only two found were deeply stained with blue and their movements were extremely sluggish, the urine being clear but intensely blue. On the fourth and the seventh days no parasites were found, although the treatment had been discontinued after the first day. On the eighth day the urine became milky, and on the night of the ninth day the parasites were found in great number, but their movements were not very active. On the tenth day the treatment was resumed and continued for five days. Three days after, the blood being examined at night, a very few motionless filariæ were observed. Since that time, and up to the present writing, the urine has been normal, and the patient has been restored to perfect health.

Judging from this single case, it appears that methylene blue is a prompt and efficient remedy for chyluria dependent upon *Filaria sanguinis hominis*. In this instance more than a year has now elapsed without a return of the disease. This single experience points to the possibility of benefit from methylene blue in the treatment of other diseases due to the filaria, such as chylous collections in the peritoneal cavity and in the cavity of the tunica vaginalis testis, hæmaturia, and elephantiasis.

About two years ago I made an observation on a perfectly healthy subject on the effects of methylene blue on the urine. An hour and a half after taking a grain and a half of methylene blue the urine was distinctly colored. In two hours and a half the urine was intensely blue. The methylene blue was continued, a grain and a half three times daily, for three days, and twice daily for four days, without the slightest inconvenience. It was discontinued at the end of the seventh day. The urine gradually lost its blue color, but it did not disappear until about forty-eight hours after the last dose. During the administration of the drug the fæces were colored blue.

I have used methylene blue with success in malarial enlargement of the spleen, in chronic cystitis, and in a few cases of gonorrhœa. I have given it in doses of a grain and a half to two grains in capsules two or three times daily. In a few cases it has produced some irritation of the neck of the bladder, but this has been exceptional. It has been recommended to give about thirty grains of powdered nutmeg with each dose of methylene blue, to guard against bladder irritation. In cases in which any trouble of this kind has occurred I have corrected it easily with nutmeg. In malaria it has been found that methylene blue directly attacks the plasmodium and promptly relieves the symptoms in many cases; but the good effects are not so lasting as when the condition is overcome by quinine. This has been my experience; but in some cases of enlarged and painful spleen of malarial origin, which have resisted quinine, the methylene blue has acted promptly and most satisfactorily. Having used this remedy for seven or eight days, I have discontinued it and substituted quinine in moderate doses and continued for several weeks, with excellent results.

I give my experience with methylene blue in gonorrhœa with great diffidence, for the reason that my opportunities for testing it have been small, and the results in the hands of others to whom I have suggested its use have not been entirely satisfactory. My attention was directed to its use in gonorrhœa by an article by Dr. Max Einhorn, which appeared in the *Medical Record* for November 1, 1891. I was specially struck with the logic of this treatment for gonorrhœa, as both methyl blue and methylene blue are used largely in staining the gonococcus. Urethral injections of methyl blue have been employed by Adler and others with only moderate success, not enough to popularize the use in this way of a remedy so troublesome and uncleanly. It seemed to me, also, more rational to use it internally, according to the method of Dr. Einhorn, impregnating the urine strongly with it, and depending upon the frequent passage of the agent in this form over the affected surface. In a few cases of gonorrhœa which were incidental to other diseases in the medical wards of Bellevue Hospital, I used methylene blue alone internally with great success. I kept no records of these cases and have records of but a few cases in private practice. The few cases that I have treated have been uniformly successful with one exception. This patient had repeatedly suffered from gonorrhœa and had a stricture and probably ulcerated spots in the urethra. He took methylene blue, a grain and a half, twice daily. It seemed at first to relieve him, and the discharge disappeared. On the ninth day, however, he drank some whisky, and the discharge returned. He then took santal Midy, and the discharge was promptly arrested. I saw him but once, and he was exposed to considerable fatigue during the entire time of his trouble, traveling on business.

In two of my recorded cases the effects of the remedy were truly remarkable:

The first case was that of a man, thirty-five years of age, with a moderate but characteristic discharge which had existed for two or three days. He was put on methylene blue, a grain and a half three times daily, and had no other treatment. The next day the discharge was very much diminished and the ardor urinæ had disappeared. I saw the patient again on the ninth day, and he was perfectly well. He stated that the discharge ceased on the fourth day. At the beginning of the treatment I suggested, as an experiment, that he continue his usual habits of moderate use of alcohol, with the idea that the impregnation of the urine with the remedy would counteract any local effects due to alcoholic indulgence. He told me, however, that for domestic reasons he was unwilling to submit to any experiment which could possibly retard a cure.

The second case was that of a man, fifty years of age, with his first attack, who was seen by me on the first day. In this case the gonococcus was discovered in the urethral discharge. The patient took two grains of methylene blue three times daily for three days and twice daily for four days. He drank wine, beer, and occasionally spirits habitually. He readily assented to my proposition to drink as usual, and on the first day of treatment drank freely of wine and beer. During the last four days of treatment he exceeded his instructions to the extent of drinking very freely, once or twice to excess and even to the point of gross intoxication. There was great diminution in the discharge on the first day of treatment, and the patient was entirely well on the seventh day.

The cases of gonorrhœa that I have treated in private practice have been in patients who had regarded me as their physician and were unwilling to make their troubles known to a stranger. I have treated these cases more or less under protest, with the understanding that they were to go to a specialist if the disease did not progress favorably toward a cure. My treatment was, indeed, experimental (but with the full knowledge and consent of the patients), as I do not pretend to treat gonorrhœa according to the modern accepted methods. My small experience, however, goes to confirm the observations of Dr. Einhorn, although I used methylene blue instead of methyl blue. It seems to me that the agent used will attack and destroy the gonococcus unless the organism has penetrated deeply into the mucous membrane. It must be, it would seem, an efficient therapeutic measure to secure the passage of urine, strongly impregnated with an agent destructive to the specific cause of the disease, frequently over the entire mucous surface affected. Immoral as it may appear, and certainly improper to suggest to the laity, it is a reasonable scientific proposition, which is suitable for this time and place, that methylene blue would probably act as a prophylactic against gonorrhœal infection in impure intercourse.

I fear that I have exceeded the limits of length which are justified by the small actual material on which this address is based; but I have thought it better to occupy your time with a slight contribution to the scientific proceedings of the association than to endeavor to entertain you with generalities which might be neither useful nor interesting.

Original Communications.

WHAT IS THE SIGNIFICANCE OF THE SPLASHING SOUND OF THE STOMACH?

By A. ROSE, M. D.

(From Dr. Max Einhorn's Clinic in the German Dispensary.)

The splashing sounds of the stomach are produced when water and air are agitated together, when either the whole body or the stomach alone is shaken. The latter is done when we tap with the fingers on the relaxed abdominal walls over the stomach. To obtain the splashing sound by means of such tapping the patient must be in the recumbent position. The sound, however, can also be produced by shaking the whole body while the patient stands upright.

The symptom in question can be elicited in most people of ordinary good health shortly after they have taken liquids or fluid food. By itself alone, therefore, it is not to be considered as a pathological symptom. In some people a splashing sound can be produced a considerable time after eating, immediately after they have swallowed from fifty to two hundred grammes of water. That, however, is abnormal.

In regard to those peculiar splashing, gurgling, or croaking noises of the stomach which some persons can develop by means of abdominal pressure, and which excite the attention of laymen, and even of some physicians, Kussmaul says: "There are many persons, whose stomachs are either of normal dimensions or dilated, who have attained great skill in causing such noises. By means of their abdominal muscles they make a horrid music with every contraction or expansion of the abdominal wall, a music which can be heard at some distance. It is a cooing, croaking, belching, and receives the most fantastic explanations; the presence of live frogs in the stomach and the like are sometimes thought of. In hypochondriacs it gives rise to sombre imaginations, and hysterical persons take advantage of it to create a sensation or admiration by such ventriloquism."

Baradat de Lacaze,* on examining patients from different wards who did not suffer from gastric disorders, found that he could produce the splashing sound regularly for two hours after liquid food had been ingested, and for six hours after full meals composed of both liquid and solid food. As we shall see presently, my own observations, made on a hundred patients, do not correspond with the results obtained by this author.

Oser † observed that in cases of gastric atony the fluctuation of small waves could be elicited for four or five hours after a full meal, and Baradat de Lacaze stated that the splashing sound could be produced for two hours after small meals, and as long as six or seven hours after full meals, in all cases in which the passage of food from the stomach was retarded.

Malibran questions whether this symptom is necessarily pathological; still, he admits its significance if it continues under certain conditions.

The same author remarks that during infancy the splashing sound can be produced in the large intestine if distended by gas; that it can not be exactly localized by the ear in cases of infants. He denies that the splashing sound of the stomach and the gurgling noise of the intestine in infants can be distinguished with certainty. He also reports six cases in which the autopsy had shown the possibility of errors in this regard. In these six cases the splashing sound had been produced during life in the colon half filled with semi-liquid fæcal matter.

When the new methods of examination of the stomach were first introduced, it was assumed that the splashing sound elicited below the umbilicus in dyspeptic persons meant dilatation of the stomach.

In speaking of dilatation of the stomach, ectasia ventriculi, most authors at present understand by this term a typical condition in which the food stagnates in the stomach, in which the ingesta taken the day previously, or before, are found on washing out the stomach in the morning.

Dr. Einhorn * has enumerated the terms used by different authors to designate a pathological condition of the stomach which not only comprises an anatomical feature, as the word dilatation implies, but which is characterized by a much more important lesion of the mechanical functions of that organ. These terms are: "dilatation of the stomach," "anatomical and clinical dilatation of the stomach," "ectasia ventriculi," "insufficiency of the stomach," "gastric insufficiency of the first and second degree." He himself uses the word "ischochymia" (ἴσχειν, to retain, and χυμός, chyme) for a prolonged stagnation of chyme in the stomach, to designate a complex of symptoms without stating the cause.

Moreover, since we distinguish between dilatation and atony of the stomach, or myasthenia gastrica, the symptom of splashing sound by itself alone does not suffice to indicate dilatation, or atony, or myasthenia. The symptom, however, is important for determining the lower border of the stomach, the low position of the organ when exceptional causes, such as tumors, can be excluded. It is of diagnostic importance, as it indicates relaxation of the muscles of the stomach in cases in which it can be easily produced over a large area. If found while the stomach is free of food it is, except in instances of continuous supersecretion, a means of diagnosticating myasthenia gastrica.

Barring cases of continuous supersecretion, the chemical examination of the contents of the stomach will not suffice for the diagnosis; on the other hand, the presence of the splashing sound by itself alone is only of value as an adjuvant in diagnosticating the abnormal state of the mechanical functions of the stomach. We know that this mechanical part has the greatest and paramount influence on the further process of digestion; if only this part is normal, other conditions lacking, digestion may go on all the same without material disadvantage. Therefore the examination for the splashing sound will be indispensable; it will always be of supreme importance whenever we examine a patient for gastric disorder.

Directly and by itself alone the splashing sound, whenever it can be produced, is a means of diagnosis for determining the lower border and the dimensions of the stomach.

Together with Dr. Einhorn I have in the latter's clinic in the German Dispensary (medical department—men) examined a hundred patients without selection for the splashing sound, in accordance with the following scheme: I wrote down how long a time previously the patient had partaken of food; then we examined the patient for the splashing sound—first, without giving him water to drink. If the symptom could not be elicited, the patient was given half a glass of water and then examined again. We noted whether the symptom could be produced easily or with difficulty. After I had recorded the result in my table, I wrote down the diagnosis of the case from the dispensary record.

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* Étude sur le bruit de clapotage. *Thèse de Paris*, 1884.

† Die Ursachen der Magenerweiterung. *Wiener Klinik*, 1881.

* Diagnosis and Treatment of Stenosis of the Pylorus. *Medical Record*, January 19, 1895

The following is the table of a hundred cases examined for the splashing sound:

No.	Diagnosis.	How long after eating.	Half a glass of water.	Splashing sound.	How far down.	Remarks.
1	Anæmia.	3½ hours.	+	+	3 fingers' breadth above umbilicus.	
2	“	2½ “	0	+	2 “ “ “ “	Lues.
3	“	2 “	0	+	2 “ “ “ “	
4	Asthma.	3 “	+	0		
5	“	2 “	0	+	1 finger's breadth above umbilicus.	
6	“	4 “	+	0		
7	Anorexia.	3 “	+	+	2 fingers' breadth above umbilicus.	
8	Ascites.	....	....	....	....	Tumor hepatis.
9	Bronchitis.	7 hours.	+	0		
10	“	2½ “	+	0		
11	“	2 “	+	0		
12	“	1 hour.	+	0		
13	“	4 hours.	0	+	1 finger's breadth above umbilicus.	
14	“	7 “	+	+	1 “ “ “ “	Easily produced.
15	“	4 “	0	+	2 fingers' breadth above umbilicus.	With difficulty produced.
16	Carcinoma ventriculi.	3½ “	+	0		
17	Do.	2 “	+	0		
18	Colitis.	3½ “	0	+	3 “ “ “ “	With difficulty produced.
19	Eczema scroti.	3½ “	+	0		
20	Emphysema pulmonum.	3 “	0	+	2 to 3 fingers' breadth above umbilicus.	Very feeble splashing sound.
21	Do.	½ hour.	+	0		
22	Do.	4 hours.	0	+	2 fingers' breadth above umbilicus.	Easily produced.
23	Do.	3 “	+	0		
24	Enteritis.	6 “	0	+	1 finger's breadth above umbilicus.	Easily produced.
25	“	4 “	0	+	3 fingers' breadth above umbilicus.	
26	“	4 “	+	0		
27	Enteritis tuberculosa.	3 “	+	+	2 “ “ “ “	With difficulty produced.
28	Enteritis chronica.	3 “	0	+	3 “ “ “ “	Very feeble splashing sound.
29	“ “	2 “	+	0		
30	“ “	3½ “	+	0		
31	“ “	8 “	+	0		
32	Epilepsy.	2½ “	0	+	As far down as umbilicus.	Easily produced.
33	Erysipelas.	3 “	+	+	3 fingers' breadth above umbilicus.	Very feeble splashing sound.
34	Gastro-enteritis.	3 “	0	+	As far down as umbilicus.	Easily produced.
35	Gastritis acuta.	7 “	+	+	1 finger's breadth above umbilicus.	
36	“ “	7 “	+	+	2 fingers' breadth above umbilicus.	Very feeble splashing sound.
37	....	4 “	0	+	3 “ “ “ “	With difficulty.
38	Gastritis a potu.	3 “	+	+	4 “ “ “ “	Very feeble splashing sound.
39	Gastritis chronica.	4 “	+	+	4 “ “ “ “	
40	“ “	7 “	+	0		
41	“ “	5 “	0	+	2 fingers' breadth below umbilicus.	Myasthenia gastrica. Splashing sound over a large area.
42	“ “	4 “	0	+	As far down as umbilicus.	Easily produced.
43	Gastro-enteritis acuta.	3 “	0	+	2 fingers' breadth below umbilicus.	Easily produced.
44	Hyperæmia cerebri.	3 “	+	+	3 fingers' breadth above umbilicus.	Very feeble splashing sound.
45	Sciatica.	3 “	+	0		
46	Ischuria.	3 “	+	0		
47	Carcinoma hepatis.	3 “	0	+	1 finger's breadth below umbilicus.	
48	Enlargement of liver.	1½ “	0	+	Closely below umbilicus.	Stomach pushed down by enlarged liver.
49	Lues.	3 “	0	+	1 finger's breadth above umbilicus.	Easily produced.
50	“	2½ “	0	+	3 fingers' breadth above umbilicus.	
51	Lumbago.	7 “	+	+	3 “ “ “ “	
52	“	1½ “	+	0		
53	Malaria.	3 “	0	+	2 “ “ “ “	
54	“	2 “	+	0		
55	“	3 “	+	0		
56	“	....	....	....	....	No result on account of invincible tension of abdominal wall.
57	“	7 hours.	+	+	1 finger's breadth above umbilicus.	
58	Nephritis chronica.	3 “	0	+	1 “ “ “ “	
59	“ “	7 “	+	+	Niveau of umbilicus.	
60	Neurasthenia.	2½ “	+	0		
61	Obstipatio.	5 “	0	+	2 fingers' breadth above umbilicus.	Easily produced.
62	Opiophagus.	3 “	0	+	Niveau of umbilicus.	
63	Pleuritis.	3 “	0	+	3 fingers' breadth above umbilicus.	
64	Pneumonia chronica.	3 “	0	+	2 fingers' breadth below umbilicus.	Gangræna pulmon.
65	Rheumatism.	2½ “	0	+	3 fingers' breadth above umbilicus.	
66	“	7 “	0	+	2 to 3 fingers' breadth above umbilicus.	
67	“	5 “	+	0		
68	“	3 “	0	+	Niveau of umbilicus.	

No.	Diagnosis.	How long after eating.	Half a glass of water.	Splashing sound.	How far down.	Remarks.
69	Rheumatism.	3 hours.	+	0		
70	Saturnism.	6 "	+	0		
71	Tuberculosis pulmonum.	3 "	0	+	1 to 2 fingers' breadth below umbilicus.	
72	Do.	3 "	0	+	2 to 3 fingers' breadth below umbilicus.	Easily produced.
73	Do.	7 "	+	+	3 fingers' breadth above umbilicus.	
74	Do.	3 "	+	0		
75	Do.	3 "	+	+	2 " " " "	
76	Do.	6 "	0	+	2 fingers' breadth below umbilicus.	Easily produced.
77	Do.	1 hour.	0	+	3 fingers' breadth above umbilicus.	
78	Do.	....	....	....	....	No result on account of tension of abdominal walls.
79	Do.	9 hours.	0	+	2 fingers' breadth above umbilicus.	
80	Do.	4 "	0	+	3 fingers' breadth below umbilicus.	Easily produced.
81	Do.	2 "	0	+	1 finger's breadth below umbilicus.	Easily produced.
82	Tænia.	12 "	+	+	2 fingers' breadth above umbilicus.	Very feeble splashing sound.
83	Ulcus ventriculi.	3 "	+	0		
84	" "	3 "	0	+	2 " " " "	Et vitium cordis.
85	Urticaria.	4½ "	+	+	2 " " " "	With difficulty produced.
86	Vertigo.	2½ "	0	+	1 fingers' breadth above umbilicus.	Easily produced.
87	"	3 "	0	+	1 " " " "	Easily produced.
88	Vitium cordis.	4 "	+	+	4 to 5 fingers' breadth above umbilicus.	
89	" "	3½ "	+	+	2 to 3 fingers' breadth above umbilicus.	
90	" "	1 hour.	0	+	1 finger's breadth above umbilicus.	Easily produced.
91	" "	3 hours.	+	0		
92	" "	3 "	0	+	2 fingers' breadth above umbilicus.	Very feeble splashing sound.
93	" "	4 "	0	+	2 fingers' breadth below umbilicus.	Over large area.
94	" "	3 "	0	+	4 fingers' breadth above umbilicus.	With difficulty.
95	" "	4 "	+	0		
96	" "	3 "	0	+	3 " " " "	With difficulty.
97	" "	2 "	+	0		
98	" "	5 "	+	+	3 " " " "	With difficulty.
99	" "	3½ "	0	+	Almost as far down as umbilicus.	Easily produced.
100	" "	4 "	0	+	2 fingers' breadth above umbilicus.	

In thirty cases no splashing sound could be elicited. In six of these food had been taken only from one half to two hours before examination. In two cases no result was obtained on account of invincible tension of abdominal wall. In one case the symptom was found six, in two seven, in one eight, and in one twelve hours after eating. In sixteen cases the splashing sound could be elicited as far down as or below the umbilicus. Out of these sixteen cases there were only nine in which gastric symptoms had been complained of. In thirty-three cases with splashing sound there were no gastric complaints. In three cases with grave gastric affections (two, carcinoma ventriculi; one, gastritis chronica) the splashing sound could not be elicited. In those two of carcinoma the examination had been made three and a half resp. two hours after eating.

Diseases of the stomach are often associated with diseases of the apparatus of circulation and the apparatus of respiration. In fact, all diseases of long duration and weakening character go together with affections of the stomach. Thus we find in our table, for instance, in twenty-four cases of heart and pulmonary diseases, splashing sound in nineteen instances.

Fatal Effects of Tight Lacing.—The *Lancet* for May 25th publishes the following account: A woman, eighteen years of age, was attacked on the 11th of May with pains in the stomach, and a physician was called to see her, who found her corset so tightly laced that it had to be broken off. She was taken home and treated, but she died on the 12th. At the post-mortem examination an ulcer was found in the stomach, which the physician attributed to tight lacing.

EXPLORATORY PLEUROTOMY AND RESECTION OF COSTAL PLEURA.

By CARL BECK, M. D.

Henry W., four years of age, was sent to the surgical division of St. Mark's Hospital on June 6, 1894. The family history revealed that the patient's father was in good health and that his mother had died from pleuro-pneumonia. From the report of the family physician it was learned that the patient had been sick since January 29, 1894, when he was seized with pleuro-pneumonia, which ended in a crisis about February 7th. The temperature (from the attack until June 6th) varied between 99° and 102° F., and symptoms of compression, such as dyspnœa, dullness, and weakened respiration, were always more or less present. On the strength of these symptoms pyothorax had been diagnosticated, and accordingly thoracotomy was advised by the family physician.

On June 6th, when I saw the patient for the first time, I found the following condition present:

The boy was emaciated and showed a slight retraction of his thorax on the left side. The circumference at the nipple was twenty inches, each side comprising ten inches. Respiration, 62; pulse, 130; temperature in ano, 101·4° F. By palpation the vocal fremitus was found increased on the left side and slightly diminished on the right side. Anteriorly on the right side the whole area situated above the upper border of the third rib, as well as the axillary region, was found to be tympanitic on percussion, while the area below was normal. Posteriorly the percussion note was vesico-tympanitic above the fifth rib and normal below.

On the left side dullness was found anteriorly from the apex to the base. Auscultation on the right side revealed roughened respiration and fine moist râles over the whole chest. The vocal resonance was slightly diminished. On the left side distant respiration without change could be heard, while the vocal resonance was slightly increased.

Crepitant râles could be distinctly heard over the whole left side. They were accompanied by fine moist râles. The dullness was most manifest over an area extending from the upper border of the seventh rib and from the mamillary line to a point situated about an inch back from the posterior axillary line.

The heart was slightly displaced toward the right side. The first sound was short, high in pitch, and metallic in quality. The pulmonic second sound was accentuated. The aortic sound was normal.

In the light of this *status præsens*, the diagnosis "pyothorax" was obvious. The most important means of verifying this diagnosis, exploratory aspiration, had, however, not been tried yet.

After the whole left side was well disinfected, an exploratory needle, which had been rendered dry and aseptic by holding it over an alcohol flame, was introduced in the fifth intercostal space between the anterior and posterior axillary lines. Considerable resistance could be noticed as soon as the needle had passed the intercostal space. As only one drop of a slightly yellowish fluid was drawn, the aspiration was repeated two inches lower down in the same line and with a negative result. After having inserted the exploratory needle seven times on different portions of the dull area, I refrained from further procedures at the time. Knowing the frequency of diagnostic errors in such cases where, in spite of the negative result of a few aspirations, pyothorax was present, I was not yet convinced of the absence of pus.

Every physician who has had much experience in pyothorax will admit that in spite of the most minute consideration of all diagnostic rules bearing upon this subject, he will often be surprised by the result of the exploratory puncture. It may happen, in fact, that all the classical symptoms, as they are described so well in text-books, are absent, and still pyothorax is detected at last. Repeatedly I have found pus only after a considerable number of aspirations were made; so, for instance, in a case where the cavity was almost filled up with a cheesy mass, the liquid pus present amounting to a trifle only. In such a case it is natural that the needle, by being introduced into these solid masses, can not draw any pus (*vide* article on Pyothorax, *Medical Record*, May 19, 1894). The same negative result can be obtained in a case where there are large fibrinous masses in serous effusions.

It has, furthermore, to be considered that there are exceptional cases of pyothorax where the pus cells have settled down like a sediment to the bottom of the abscess cavity, while above this a collection of a clear serous fluid is found, which, if aspirated, would necessarily leave the surgeon under the conviction that no pyothorax existed at all. Such misapprehension may come all the easier if the exploratory puncture is made high up. This fact teaches that punctures should be made below as well. It should then, however, not be forgotten that just in the most dependent part the clots which settle there are likely to clog the exploratory needle. If in such a case absorption of the fluid should take place, and the sediment-like pus should undergo thickening at the same time, the result of the aspiration, being negative, would ordinarily give no information as to the true state of the pleural cavity.

To continue the history: On the following day I repeated the exploratory aspiration five times over the dull area with the same result as before. Some elucidation was expected from the bacteriological investigation of the drop which had been drawn at the first aspiration; but the bacteriological examination revealed the absence of pathogenic micro-organisms, and under the microscope only blood and lymph cells were detected. Similar investigations were made after each of the negative aspirations in this manner: a syringe was filled then with sterile water, which was discharged into a Petri's plate containing gelatin. This was done in the expectation that, in case cheesy masses were present, small particles of them would be forced into the calibre of the needle, in or on which they could not be perceived macroscopically; but, by being mixed with the sterile water, they could possibly be recognized by the aid of the microscope. But this experiment proved to be negative also.

What diagnosis could be made now on the basis of these examinations? The history showed that there was an inflammatory process, probably followed by the formation of an effusion. Considering the fact that effusions in the pleuræ of children are almost invariably of a purulent character, it was obvious to assume that a pyothorax had been present, the liquid contents of which were absorbed by this time. Another question was, Were the solid contents absorbed also, and was the dullness only the expression of thickened pleural tissue, or was it the expression of cheesy masses the existence of which could not be demonstrated by our insufficient diagnostic means? In favor of a thickening of the pleura was the great resistance experienced whenever the needle was introduced; but then it had to be considered that both conditions alluded to could be combined just as well. If so, was it wise, then, not to interfere with the further process of absorption of cheesy material which predisposes so much to tuberculosis? The possibility of the existence of a subpleural abscess or of an echinococcus of the lungs could with all probability be excluded. Neoplasms, such as carcinoma, sarcoma, or lymphoma, could also be excluded by regarding the acute onset of the disease. Tuberculosis did not appear to be probable, as neither in the sputa nor in the aspirated drop was any evidence of the presence of the tubercle bacillus found.*

So, considering the difficulties of diagnosis in this case, I did not see why, if everybody admits the necessity of exploratory incisions in abdominal surgery and lately also in the precarious field of brain surgery, *the pleural sac should not enjoy the same privilege.* What is to be feared most in an incision of this kind is the formation of pneumothorax. But this accident would hardly occur in pleuritis, where the presence of adhesions would prevent unintentional opening of the thorax. Under strict aseptic precautions even this accident, however, would not necessarily need to be feared, as pneumothorax would disappear soon after the wound was closed, as the lungs would then expand readily. So, for instance, have I never met with any dangerous symptoms due to pneumothorax in five cases of subphrenic abscess where I, after resection of a rib, opened the pleural sac before I had incised through the diaphragm. In the case of a very much emaciated patient the symptoms of shock became evident as soon as after opening of the pleura air rushed into the pleural cavity with considerable noise, so that I deferred incision of the subphrenic abscess until the following day, whereafter the patient made a good recovery.

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* This, however, could not be regarded as an absolute proof for its non-existence, as in serous effusions this bacillus is but exceptionally found. Even in cases in which tuberculosis has been well demonstrated by other diagnostic means, ounces of freshly drawn effusions have been injected into the peritoneal cavities of rabbits without producing the slightest symptoms of tubercular infection.

On June 9th, under minute aseptic precautions, an incision was made above the fifth rib, reaching from the mamillary line to the posterior axillary line, where the dullness was most distinct. A piece of rib, four inches in length, was resected subperiosteally. The posterior portion of the periosteum was then divided, so that the costal pleura came into view. Careful dissection revealed the presence of thick fibrous tissue, which was cut off by conducting the knife flat upon the pleura about in the way a chiropodist holds his knife. The knife lost its edge by cutting this tissue on account of the cartilaginous, partially even calcareous, condition of the pleura. After the flat incisions were repeated about a dozen times, thus constantly removing pleural tissue, a point of softer consistence was reached. The diameter of the resected pleural tissue amounted to nearly an inch.

By now introducing a flat probe to the point alluded to, it was revealed that the inner surface of the costal and the external surface of the pulmonary pleura were loosely attached to each other by adhesions. By pushing the probe farther back it was easy to lift the posterior surface of the costal pleura from the corresponding anterior surface of the pulmonary pleura by tearing the adhesions. But it had naturally to be presumed that this fibrous condition of the costal pleura extended much farther. Therefore, as anæsthesia was borne very well, the fourth and sixth ribs were removed also for the same length as the fifth was. Then, by lifting up the costal from the pulmonary pleura, and after having introduced a blunt elevator through the incision in the costal pleura, it was easy to exsect the degenerated costal pleura by means of the rib shears. The average diameter of the margins of the exsected pieces amounted to half an inch. No effusion and no cheesy masses were found anywhere in the pleural cavity. After the field of operation was made clean by gauze mops dipped in sterilized water, the edges of the wound were united by a continuous silk suture, leaving a few sterilized wicks in each corner of the wound. Then, by means of sterile gauze and of a large piece of absorbent moss-board, compression was exercised upon the resected area.

No reaction followed which could be attributed to the wound. The dyspnœa was not relieved until forty-eight hours afterward, when the number of respirations went down to 40. The average temperature had been 101° F. and the pulse 120 within these two days. On changing the dressing three days after the operation no reaction was found in the wound. When the wicks were withdrawn a few drops of serum were discharged. The wicks were not replaced. Two weeks after the operation the following condition was made out: Union by first intention was obtained. The temperature was normal and the pulse-rate was 96. The general condition of the patient had improved. Above the resected areas the dullness was much less distinct than before, while the respiratory sounds were very distinct. Dyspnœa was still present, but slight.

The patient was discharged from the hospital a week later, after having gained three pounds. He remained well until the 28th of November, when he was taken ill with bronchitis. At that time he was examined by Dr. Reynold W. Wilcox, of this city, who reported to me that the respiratory sounds were very much more distinct over all the directions indicated by the cicatrix on the left side. The same condition was ascertained by Dr. Morvay Rottenberg, of this city, who also had the kindness to examine the child on December 24th.

On May 10, 1895, when we had a chance to examine the patient again at my clinic at the New York Post-graduate Medical School, it was found that the dyspnœa had disappeared entirely. Auscultation did not reveal any abnormities. Only slight dullness above the resected area was still noticeable. The general condition of the child proved to be excellent.

As there can be no doubt that exploratory incisions of the pleura, if done under the necessary precautions, will prove to be free from danger, they should be undertaken whenever there arises any such doubt as in the case reported. As to the diagnostic value of this method, it may be urged that in this case the exploratory incision proved the presence of an enormously degenerated pleura and the absence of solid masses. That the resection of thickened pleural tissue will relieve compression is also obvious. To what extent it can, however, be utilized in practice will, of course, not be pointed out by a single case. As the whole thickened area was not removed, a fair amount of degenerated tissue remained; but it appears to me that if only a portion of it, especially the thickest part —in other words, if a great obstacle to the free expansion of the lungs is removed, there are all chances of compensation.

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SOME PRACTICAL REMARKS CONCERNING THE TREATMENT OF INTERNAL HÆMORRHOIDS.

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The first essential of success in the treatment of rectal diseases is a careful examination.

The physician who accepts his patient's statement without a further examination, in the majority of cases will find their satisfactory treatment forever a sealed book.

Assuming, then, that a correct diagnosis of internal hæmorrhoids has been made, we immediately divide them into the surgical and the non-surgical.

The latter division embraces, first, that class of hæmorrhoids dependent upon diseased conditions elsewhere, such as stricture or cancer of the rectum, diseases of the prostate or bladder, the pressure of a gravid uterus, uterine or ovarian tumors, or cirrhotic conditions of the liver.

In such conditions an operation is useless, and the efforts of the physician should be directed toward a removal of their cause.

Again, we have a class of patients who suffer only mildly from hæmorrhoids—that is, they are not very appreciably inconvenienced by pain, uneasiness, or hæmorrhage. For such patients an operation is hardly indicated, and all that is necessary is to pay attention to their diet and to the condition of their bowels.

Where patients suffer from hæmorrhoids that are inflamed or strangulated, the condition is really one of infective phlebitis, and for the time being non-surgical measures are by far the safest.

All irritation of the anal region should be carefully avoided, and the bowels regulated by appropriate diet and the proper use of laxatives. Each evacuation from the bowels should be followed by an ablution of warm water, and, if the piles protrude, anoint with plain vaseline and replace them.

In this class of cases large injections of cold water (40° to 50° F.), either plain or medicated with boric acid or antipyrine, are productive of much good in the abatement of the inflammation, congestion, and in arresting small bleedings.

In the vast majority of cases of internal hæmorrhoids astringent injections or ointments are not only useless but absolutely harmful. Where the inflammation is severe or gangrene is threatened warm applications find their place.

In addition to the treatment enumerated above, some soothing topical application or ointment is nearly always indicated, especially when associated with severe pain. Wash the parts with a little warm water and apply the following ointment:

℞	Cocain. hydrochlorid............	gr. vij;
	Ext. opii aq......................	gr. xx;
	Ext. belladonnæ.................	gr. xij;
	Ung. populei....................	℥ j. M.

If deemed necessary, at bedtime use the following suppository:

℞	Ext. opii aq......................	gr. j;
	Pulv. iodoformi..................	gr. iij.

M. Ft. sup. no. j.

This now brings us to a consideration of that division of hæmorrhoids best treated by surgical measures, which comprise by far the vast majority of the cases that consult the physician. Hence we say the scientific treatment of internal hæmorrhoids is one that is essentially surgical, and the numerous methods devised for their treatment from time to time have been legion.

The injection method, which is so extensively lauded by certain practitioners, is both unscientific and dangerous, and has nothing to recommend it except that it is sometimes painless, but by no means always so. It is unsatisfactory because so often unsuccessful, and it is dangerous because you can not regulate the inflammation produced, some of its consequences often being sloughing of the part injected, ultimately stricture, or else the production of a septic focus with the formation of venous thrombi, which become dislodged by defecation or some motion of the patient, are carried to the liver, and form minute abscesses. Thus patients not infrequently have died of hepatic abscess, septicæmia, or pyæmia, when their history, if understood, could have been directly traced to this painless subterfuge of quackery.

There are two methods of treating internal hæmorrhoids, and only two, which have stood the test of time, and they are the ligature and the clamp and cautery, and a comparison of these two methods is the chief purport of this article.

It is but fair to state, however, that the operation of excision devised by Whitehead is theoretically an ideal one, and in his hands has yielded most gratifying results, but for obvious reasons it is an operation that will never commend itself to the general practitioner. If we compare the ultimate results of the method by ligation with that by the clamp and cautery, neither has an advantage over the other, both yielding most excellent results. But we must make our comparison from the time of operation till the patient is well. In comparison to the clamp and cautery the method by ligation, in many cases, is both slow and tedious; hence the ease and rapidity of the former method are not without their apparent advantage.

If we compare the after suffering of these two methods, we have a decided advantage in favor of the clamp and cautery. Rarely after an operation by the clamp and cautery is it necessary to prescribe an opiate, and we all know how seldom it is after an operation by ligation that we are not compelled to administer such remedies. The fact that patients suffer so little in comparison to the method by ligation gives to the clamp and cautery a decided preference.

Again, if we compare the time of confinement, the clamp and cautery still has the advantage. Seldom are patients operated upon by the ligature enabled to leave their rooms under two weeks, while with the clamp and cautery the majority leave in almost half the time. The clamp and cautery has these points of advantage: Ease and rapidity with which the operation can be performed, comparative absence of pain after operation, and the lessened loss of time from business. These are all points which do not fail to commend themselves to the observing surgeon, and have won for the clamp and cautery a widespread and growing popularity in the treatment of internal hæmorrhoids.

The use of the clamp and cautery does not and can not give better final results than the ligature, but it gives just as good. Both methods are simple, the final results of both the same, and the ligature has only this point of advantage—that is, it requires no special instrument for its performance.

In operating with the clamp and cautery, after cleaning out the rectum and paralyzing the sphincter muscle, grasp the pile tumor with forceps and bring it well down, then with scissors incise the mucous membrane around the lower border of the tumor. Apply the clamp, excise the tumor to within about a quarter of an inch of the clamp, and then cauterize. Slightly loosen the clamp, and if there is any bleeding cauterize again. Always leave a margin of mucous membrane between the pile tumors cauterized. Of course, judgment must be exercised in the use of the cautery so as not to make the number of applications too numerous. When, however, the hæmorrhoidal area is unusually extensive and involves the whole circumference of the anus, then Whitehead's operation is indeed an ideal one, and should be the operation selected for this class of cases.

The Death of Dr. Emil Noeggerath, formerly of New York, is announced as having taken place recently in Wiesbaden. Dr. Noeggerath was well known as the author of the theory of the origin of certain pelvic diseases of women in infection with "latent gonorrhœa."

AN EXPERIMENTAL STUDY OF DIRECT AND INDIRECT FARADIZATION OF THE DIGESTIVE CANAL IN DOGS, CATS, AND RABBITS.[*]

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The electrization of the stomach or the intestines has for its purpose, among other things, the production of contraction in these organs. As is well known, two methods are at present employed in the electrical treatment of the digestive canal: the *percutaneous* and the *direct* electrization. In the percutaneous electrization both electrodes are placed outside, on the abdominal wall, in a manner which is deemed best to reach the organ in view. In the direct electrization one electrode is applied to a selected place on the abdominal wall, and the other electrode is introduced either into the rectum or into the stomach. Both methods are extensively employed by neurologists, and by the specialists for the stomach, as well as by the general practitioners. The application of electricity by these methods presupposes that the current reaches the muscular coat of the stomach or of the intestines, and reaches it in such a strength as to produce a local contraction which is then the cause of a peristaltic movement of either the stomach or the intestines. In the extensive literature on our subject we meet hardly a dissenting voice as to the correctness of this supposition. The statements that the electrization of the abdomen is sometimes followed by defecation; von Ziemssen's[†] statement of the visible or palpable contraction of the intestines in a hernia during its electrization; the quicker disappearance of water from the stomach or the earlier appearance of the salol test after the electrization of the stomach; these are the main clinical proofs for the effectiveness of the electrization upon the motor part of the digestive canal. In a case of cancer of the pylorus with visible peristaltic waves of the dilated stomach, Pepper,[‡] however, reported that the percutaneous electrization of the stomach did not influence its visible peristalsis. Kussmaul,[#] on the other hand, states that he has seen in one case the visible peristaltic waves on a dilated stomach quickened by the direct (internal) electrization. This seems to speak in favor of the direct and against the percutaneous electrization. Indeed, all writers seem to agree that the direct electrization is preferable to the subcutaneous application. The objection against the former is based mainly upon its inconvenience for the patient; but since the introduction of improved stomach electrodes (Einhorn's[‖] deglutable electrode; Ewald's[△] modification of it; Wegele's[◊] spiral electrode) the inconvenience has been considerably reduced. It seems to be in harmony with the general sentiment at present when Ewald thus says: "Surely, by using Einhorn's stomach electrode or my modification of it, contractions of the muscular fibres of the stomach themselves must be obtained." Ewald,[*] however, says also: "It must, unfortunately, be admitted that all such therapeutic procedures which may be complicated by other factors, do not of themselves prove much until we have the ocular proof of seeing the stomach contract under the influence of the electric current." This "ocular proof of seeing the stomach contract" is, as far as I have been able to see, not yet furnished. The present status is then as follows: It is a generally prevailing view that the percutaneous electrization of the stomach and intestines produces a contraction of these organs; it seems to be universally accepted that stimulation of the mucous membrane of the stomach is the most direct and safest way to effect its contraction. There is no positive proof of either of these assumptions.

While studying the influence of the vagus upon the stomach, I made an unexpected observation which gave rise to a series of experiments upon animals bearing upon the subject of electrization of the stomach and intestines. The results of these experiments I am now going to report.

The electricity in my experiments has reference only to the faradaic current. I employed the large sliding *inductorium* of Du Bois-Reymond with more than ten thousand coils; the primary coil was connected with a Grove's cell, freshly arranged for each experiment, while the secondary coil formed with a Du Bois-Reymond key a closed circuit. As is well known, the strength of the current in such an apparatus is measured by the distance between the secondary and primary coils. In my report I shall term it briefly the *distance*. The current is increased with the shorter distance, but not in exact proportion, the increase of the current occurring more rapidly the nearer the secondary coil comes to the primary. For instance, the increase of the current is greater when the secondary coil is moved from one hundred to ninety than when moved from two hundred to a hundred and ninety millimetres distance.

All the animals were under thorough anæsthesia: chloral for the rabbits and ether for the dogs and cats; in a few cases the animals were also under the influence of curare. Artificial respiration was employed in nearly all the experiments. The results obtained were verified in all the three kinds of animals; the greatest number of experiments, however, were made on dogs, which are best suited for our purpose. The stomach of the rabbit is not a good object for studying the main phenomenon of our results. The stomach of the cat, on the other hand, is rather a good object for study, but this animal succumbs quickly to the influence of ether, and is therefore harder to handle. I am not going to bother you with a detailed account of all my experiments; I shall only report the results which were derived in each case, not from a single but rather from an oft-repeated experiment, giving a uniform effect.

Experiments on the Stomach.—The abdomen of a dog is opened, the omentum is removed, and the entire stomach is exposed to a full view and kept constantly moist with a physiological saline solution. For local stimulation two copper wires were employed which were conveniently united in a well-polished wooden handle; the wires were flattened at the end and stood about one centimetre apart. By successively stimulating with this double electrode the entire surface of the stomach, it was established that only about one third of it responded with a distinct contraction to an efficient local stimulation. A line drawn perpendicularly from the middle of the cardia to the large curvature divides the stomach into two parts. The part lying to the right of the line is contractible, and the remaining part, or we might say the fundus, is nearly incontractible; a strong and long stimulation produces a hardly perceptible effect. The contractibility of the cardio-pyloric part seems to be the better the nearer we come to the pylorus. The change in the contractibility of the two parts occurs quite abruptly. Exactly the same conditions we meet with in the stomach of the rabbit; the very large fundus of this animal is quite incontractible. In cats, however, an efficient stimulation produces a well-marked local contraction in all parts of the stomach, which by the way, does not have a well-developed fundus and is altogether correspondingly smaller than in the other two animals. If there has not been any peristalsis going on before electrization, a local stimulation effects only a local contraction, except in the pylorus, where a stimulation brings on a wavelike contraction of this entire part. If there were peristaltic movements going on in the cardio-pyloric part before the stimulation was started, then a local contraction was sometimes the cause of spreading a new peristaltic wave over the contractible area.

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[*] Read before the Association of American Physicians at its tenth annual meeting.

[†] Von Ziemssen. *Die Electricität in der Medizin*, 4. Aufl., 1892.

[‡] Pepper. *A Case of Scirrhus of the Pylorus, with Remarks on the Electrical Excitation of the Stomach.*

[#] Kussmaul. *Archiv für Psychiatrie*, Bd. viii.

[‖] Einhorn. *Med. Record*, May 9, 1891.

[△] Ewald, C. A. *Berliner klin. Wochenschrift*, 1892, No. 26.

[◊] Wegele. *Therapeutische Monatshefte*, April, 1895.

[*] Ewald, C. A. *Diseases of the Stomach.* Translated by Manges, 1892, p. 68.

If we select a place on the stomach which is capable of giving us a well marked contraction, and then look for the strength of the current which is capable of calling forth such a contraction, we find that the first signs of a contraction become noticeable at a distance of two hundred to a hundred and eighty millimetres, and get more and more pronounced as we are gradually moving forward the secondary coil, until at about a hundred and thirty millimetres distance we obtain the maximum effect. Such a maximal contraction appears like a deep groove on the stomach, which stands parallel to the vertical axis of the organ. The contracted part looks pale and ischæmic, and reminds one of an old scar from a burn. If a strong stimulus is used, the latent period is quite short, and the contraction lasts for more than twenty seconds after the stimulation was interrupted. Of course, the numbers mentioned vary to a certain degree; but I do not recall any case where a still shorter distance than a hundred and twenty millimetres was required to obtain a maximal contraction.

After determining such a well-contracting place, an opening was made in the fundus, the contents of the stomach were removed, and the mucous membrane was cleansed with a saline solution. I then introduced the double electrode into the cavity of the stomach, applying its ends to the mucous membrane right opposite the determined place on the outer surface. When I now opened the key while the distance of the secondary coil was still the same as it was when used for the maximal contraction, not the slightest contraction could be noticed even after prolonged stimulation! The immediate stimulation of the outer surface produces the usual contraction—the effect did not suffer by the opening and cleansing of the stomach. As long as the heart continues to beat and the stomach is kept sufficiently moist, the experiment can be repeated again and again with uniformly the same result. The stimulation of the mucous membrane remains without any effect, even when the strength of the current is considerably increased; the secondary coil can be shifted forward to a hundred and ten, to a hundred, or to ninety millimetres distance, or even still nearer to the primary coil, without a sign of a contraction making its appearance. This, however, is not absolute. A very strong current will finally penetrate the stomach wall. At a distance of forty or fifty, sometimes already at eighty or even ninety millimetres the stimulation of the mucous membrane does not fail to produce a well-defined contraction. Usually the current is then exceedingly strong; but even then the effected contraction is in no comparison to those contractions obtained by stimulation of the outer surface with a distance only of a hundred and thirty to a hundred and forty millimetres. In fact, even at zero the contraction produced from the mucous membrane is much weaker than the maximal contraction from the outer surface. The same remarkable difference we find also to exist in the stimulations of both surfaces of the stomachs of the cats and rabbits. The stomach of the latter animal, however, is usually overfilled and very distended; when it is emptied it shrinks considerably and it appears to be in a contracted state. The difference can be clearly seen even then, but the stomach is in this state by no means a good object for our study. Furthermore, I found the difference under discussion to exist also in the stomach of the frog; but this thick-walled stomach, with its small and slow contractions, was certainly not a desirable object for an extensive study of our phenomenon. I wish to add that in studying the effect of a stimulation it is necessary to be aware of the accidentally passing by of a peristaltic movement which might be mistaken for a local contraction.

To decide the question whether in electrizing the mucous membrane any current at all is passing through the stomach wall, I made the following experiment: The sciatic nerve of the animal was placed in a Ludwig's nerve electrode, the protruding wires of which were connected by means of flexible conductors with another pair of electrodes. These latter, being only a few millimetres distant from one another, were placed on the outer surface of the stomach, just opposite the space between the electrodes adjusted to the mucous membrane. When, now, the current leading to the latter electrodes was closed the leg of the animal began to jerk. That certainly means that the current passed through the wall of the stomach, and then by the way of the outer electrodes through the sciatic nerve. I made use of this practical arrangement also for some other purposes. For brevity's sake, I shall hereafter refer to this arrangement as the sciatic electrodes. When I connected the outer electrodes with the uncovered abdominal muscles instead of with the sciatic nerve, the closure of the current did not produce a contraction of these muscles. All this goes to show that a current does pass through the wall of the stomach of sufficient strength to stimulate a motor nerve, but not strong enough to stimulate skeletal muscles, and certainly not strong enough to produce even a minimal contraction of the unstriated muscular tissue of the stomach.

My next line of experiments was to study the effect of electrical stimulation upon the stomach when one electrode was introduced into the stomach and the other applied to its outer surface. For these experiments the animals did not receive any food for two days previous to the experiment. In dogs the stomach was then usually sufficiently empty. The stomach electrode had a thickness of a few millimetres; its connecting wire was hidden within a stomach tube open at the end. It is worth mentioning that after introducing the electrode through the mouth into the stomach, it was always found to be located in the fundus, just outside of the contractible part of the stomach. By bending the wire to the right side I succeeded in placing the protruding point of the electrode into the middle of the contractible area. As an outside electrode I used a metal ball of about fifteen millimetres in diameter attached to a wooden handle. The results of these experiments were uniformly as follows:

When one electrode was introduced through the mouth into the stomach and the other placed on the outer surface of it, about two centimetres or more away from the protruding internal electrode, there was no contraction to be seen even with a strong current; but if both electrodes were placed very near one another, a strong current produced a contraction which was the stronger the nearer both points of the electrodes were to one another. If a piece of omentum, however, was placed between the stomach and the outer electrode, the current produced no effect even when both points of the electrodes stood one just over the other. I should add here that the presence of omentum on the stomach did not impair the effect of the stimulation in the case when both electrodes were placed on the outer surface. If the internal electrode was not pressed well against the wall of the stomach, but was suspended within the cavity, which was filled for this purpose with a saline solution, no contraction could be effected, no matter where the outer electrode was placed.

To test still more definitely the value of the direct electrization of the stomach as it is employed clinically, the following experiments were made:

1. The internal electrode was either immersed in the saline solution within the cavity of the stomach or pressed distinctly against the wall of the contractible part of the stomach; this part was then put in such a position as to be easily accessible to the view. The external electrode, the one used before, or a large sponge was placed upon the well-shaved abdominal wall in the nearest neighborhood of the stomach. A strong current produced a strong contraction of the abdominal muscles, while the stomach remained perfectly motionless. This shows that the contraction of the abdominal muscles beneath the outer electrode is by no means a proof that the stomach is also contracting. In connection with this I wish to register the observation that by means of the sciatic electrode I could prove the presence of a current in a large area around the external electrode, while the area around the internal electrode, from where the sciatic nerve could be stimulated, was certainly not more than two centimetres in diameter. Against this experiment it could perhaps be said that the direct line between the two electrodes was longer than in the usual direct electrization, and it led perhaps through the incontractible part of the stomach.

2. The wound above the stomach was tightly stitched together, but so as to be able to be opened again in a second or two; the blood at the edges of the wound, which could possibly serve as a direct conductor, was well removed. While the internal electrode was pressing against the front wall of the stomach, the external electrode was put upon the wound, so as to be in the shortest line to the contractible part of the stomach and the internal electrode. A strong current produced a contraction of the abdominal muscles. After interruption of the current the wound was hurriedly opened, the procedure not lasting longer than two seconds; the stomach was then found in the same relaxed condition as before. Whereas we know that a well-defined local contraction of the stomach lasts about twenty seconds after interruption of the stimulation, we must concede that the electrization did not produce a contraction of the stomach. But here again it might be asserted that there was a weak contraction with only a short after-effect which disappeared before the wound could be opened.

3. The electrodes connected with the sciatic electrode were placed upon the stomach just above the internal electrode and covered with omentum; the wound was then well sutured in its entire length, except a small opening at its lower end. The external electrode was then placed on the abdominal wall in the closest proximity to the electrodes on the stomach, and the current was turned on: no motion of the leg, even when the secondary coil was put at zero! This certainly shows unmistakably that when one electrode is placed within the stomach and another electrode placed on the skin just above the stomach, there is on the surface of the stomach, even with the strongest faradization, no current strong enough to stimulate a motor nerve, and certainly not strong enough to produce even a slight contraction of the stomach!

By the last three experimental methods I was enabled to test also the value of the percutaneous faradization of the stomach, and I shall state their results briefly. The corresponding places of the abdomen were shaved and sponge electrodes were applied, one in the back (Erb) and one in the front in the manner soon to be stated. When the stomach was exposed to view and the electrode set upon the skin nearest to the stomach, the abdominal muscles and the muscles in the back were contracting, but not the stomach. When the wound was stitched, an electrode applied on it and stimulated, the abdominal muscles contracted, but a quick reopening of the abdomen did not reveal a trace of contraction of the stomach. When, finally, the sciatic electrode was applied on the stomach, the wound sutured, and the external electrode placed just above the other electrodes, no current, ever so strong, produced a contraction of the limb.

Thus my experiments demonstrated definitely that neither the percutaneous nor the so-called direct faradization of the stomach was capable of producing a contraction of the stomach, at least in the animals I experimented upon.

The Experiments on the Intestines.—My experiments on the intestines are in most respects a repetition of the experiments upon the stomach, and will be reported briefly.

As is well known, the direct application of both electrodes on the intestines produces a strong constriction of the stimulated part, including a few millimetres outside of each electrode. This local contraction is very rarely the cause of an extended peristalsis. The contraction overlasts the stimulation for fifteen to twenty seconds. The local contraction of the intestines can be effected with a much weaker current than the one required for a well-defined contraction of the stomach. The current which is just sufficient to produce a strong local contraction of the intestines by stimulating their outer surface will produce no contraction by the application of the electrodes to the mucous membrane. This holds good only in dogs. In rabbits I find that an effective current for the outer surface seems to be effective also for the internal surface, except that the contraction is considerably weaker, and even in dogs a slight increase in the intensity of the current will suffice to call forth a contraction by faradization of the mucous membrane. But I can not recall ever having seen one of these contractions being remotely so strong as the ones which can easily be effected by stimulating the outer surface. And there is another difference between the conditions of the intestines and those of the stomach. If one electrode is placed on the outer surface of some part of the intestine and the other electrode is applied to the mucous membrane of even a distant part, there will always be a contraction of the part where the outer electrode rests. Furthermore, the same result will be obtained if the inner electrode is placed in the rectum or in the stomach. On the other hand, the stomach will contract if one electrode is placed upon its outer surface and the other electrode is placed within some parts of the intestines or inserted into the rectum, while it does not contract, as stated above, if this (inner) electrode is placed in the cavity of the stomach itself! If one electrode is placed within the stomach and the other in the rectum, be both cavities cleansed or not, there will be no contraction in any part of the digestive canal. This latter experiment was done already by Schillbach,* who reported that he had seen no results from this mode of electrization. Ewald,† who distrusts this statement, attributed the negative result to the unclean state of both cavities. Apparently Ewald thought that there was no current at all. This, however, is not so. Even when these cavities are not cleansed an effective current is present, as can be seen by the tetanic contraction of the lower extremities, or by the sciatic electrodes applied to any part of the abdominal viscera lying between the stomach and the rectum, only that the intestines, rectum, and stomach remain motionless. In this respect, however, the result is not altered even by a scrupulous cleansing of the employed cavities.

Concerning the effect of the electrization of the intestines by the application of both electrodes percutaneously, or one electrode in the rectum and the other on the abdominal wall, I will say briefly that the result was exactly the same as in the electrization of the stomach; the intestines remain unaffected by the current. I arrived at this conclusion by the same method which I employed for the test of the value of electrization of the stomach, as described above in full, and which I shall now point out briefly: By ocular observation, by closing and reopening the wound, and by the sciatic electrodes.

I shall add that the results of my experiments represent only the rule and do certainly not exclude the possibility of exceptions—that means that under certain very favorable conditions a current might indeed reach some parts of the abdominal viscera even by percutaneous faradization. As such an exception I am inclined to consider the above-quoted observation of Kussmaul respecting the increase of the peristalsis by electrization, and perhaps the much-quoted case of von Basch * is another such exception. Of this latter case I should like to speak here a little more in detail. An emaciated woman, whose thin abdominal wall von Basch was electrizing for a few minutes with a very strong current, fell suddenly into a dangerous faint, from which she recovered after her abdomen was massaged. Von Basch explained this accident by the supposition that the electrization produced hyperæmia of the abdominal viscera, which in turn brought on a cerebral anæmia, and this latter was the cause of the syncope. He adds, however, that the fainting spell could also be explained by a reflex action from the viscera upon the vagi. The case in itself is certainly not a strong one. An emaciated woman can be made to fall in a faint by any sort of unusual instrumental manipulations with her. My interest in this case, however, comes from observations I have made on animals. While electrizing the intestines of a dog, by having one electrode in the rectum and the other on the intestines, I noticed that the intestines became paler and paler, until they were nearly white. Upon examining the heart I found that it had stopped beating. The dog, which was living three minutes before, was dead. Later on I was careful to discontinue the faradization as soon as I noticed that a change in the color of the intestines was taking place. My explanation of this occurrence is that the current struck the splanchnic nerves, and thus produced on the one hand anæmia of the intestines by the stimulation of their vaso-constrictor nerve fibres contained in these nerves, and on the other hand a standstill of the heart by the well-known reflex from the viscera through the splanchnics and sympathetic to the vagi (Goltz's *Klopfversuch*). I also observed that the stimulation of the intestines sometimes effected a standstill of the respiration, at least in rabbits with natural breathing. This means also an inhibitory reflex action carried by the splanchnics to the respiratory centre (Graham). Now, if the syncope in the case of von Basch was indeed due to the current reaching the intestines, I would then believe that the intestines were not in a state of hyperæmia, as von Basch puts it, but rather in a state of anæmia, the entire accident being similar to my experience with the dog. Accordingly, we may state that by some exceptionally favorable facilities a current coming from the electrization of the abdominal wall might indeed reach the intestines. But then we should bear in mind that it might occasionally have a fatal effect.

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* Schillbach. Virchow's *Archiv*, Bd. cix, p. 284.

† Ewald. *Diseases of the Stomach, loc. cit.*

* Von Basch. *Wiener med. Blätter*, 1878, No. 12.

Before concluding, I have to add a few remarks with reference to the electrization of mucous membranes. Faradization of the mucous membrane of the pharynx or of the tongue produces a contraction of the muscles beneath them exactly as if there were no membranes between the muscles and electrodes. In faradization of the mucous membrane of the œsophagus in its upper third the effect is like directly electrizing striated muscle tissue—the contraction sets in with the closure and disappears with the opening of the circuit. In the few instances in which I have tried it, I have found that with the internal electrization the circular contraction, and with the external the longitudinal contraction, predominates. On the behavior of the mucous membranes of the stomach and the intestines I have reported above. There is not much difference between the small and the large intestine, but there is a marked difference between them and the rectum; here the mucous membrane is nearly as responsive as the outer surface. There is also in the bladder a pronounced difference between the effects of stimulation of the mucous membrane and those of stimulation of the external surface. In the non-gravid uterus I have not been able to produce any contraction, and a gravid one has not been at my disposal.

The general feature of these experiences is that those mucous membranes which cover striated muscular tissue form no obstacle to the current, and those which cover plain muscular tissue do form an obstacle; within this latter class, again, the tissue which is least irritable is covered with a mucous membrane which offers the greatest resistance to the electrical current. Thus, the muscular coat of the stomach is the least excitable and the mucous membrane offers the greatest resistance. That the difference in the excitability of the muscular tissue is not the only cause for the proved resistance of the mucous membrane of the stomach or intestines can be proved by the following experiment: The mucous membrane of the tongue is replaced by a piece of mucous membrane of the stomach; faradization now does not produce a contraction of the muscles of the tongue. That is also the meaning of the above-quoted experiment—*i. e.*, that electrodes placed upon the outer surface of the stomach could transmit an effective stimulus to skeletal muscles by the way of the motor nerve, but not by direct application of muscular tissue. We can now understand the meaning of some of the apparently paradoxical experiments on the stomach and intestines. The muscular coat of the stomach is less irritable than the coat of the intestines, and the mucous membrane of the stomach offers a greater resistance than that of the intestines. Therefore, if one electrode rests upon the mucous membrane of the intestines and the other upon the muscular coat of the stomach, the latter contracts because the mucous membrane in point has a smaller resistance, or, if one electrode rests upon the mucous membrane of the stomach and the other upon the muscular coat of the intestines, the latter contracts on account of the greater excitability of this muscular tissue. But if one electrode is upon the mucous membrane of the stomach and another rests upon its muscular coat, then there is no contraction, because the muscular tissue in question is the least excitable and the mucous membrane offers the greatest resistance. What the resistance means, what are its nature and extent, I should not attempt to answer for the present; it is reserved for a further study.

The main results of my experiments are, then, briefly stated as follows:

The mucous membrane of the digestive canal offers a considerable resistance to the penetration of the faradaic current to the muscular coat; the greatest resistance is found in the mucous membrane of the stomach.

The percutaneous and the direct faradization of the stomach or the intestines can not produce any contraction in these parts.

My statements have reference only to the animals I experimented with. However, abdominal surgery might offer an opportunity to test their validity for the human being.

TAPPING THE VERTEBRAL CANAL.*

By AUGUSTUS CAILLÉ, M. D.

HAVING recently seen a case involving the diagnosis between intracranial abscess, purulent meningitis, and tubercular meningitis, in which case a correct diagnosis was arrived at by means of tapping the vertebral canal in the lumbar region and subjecting the fluid removed to a microscopical examination, I beg leave to report my experience with a method of diagnosis first suggested by Quincke at a meeting of the German Medical Congress in 1891, but one that has apparently received no attention in our country.

Tapping the spinal canal is done with the understanding that there is an open communication between the subarachnoid space surrounding the spinal cord and the ventricles of the brain. The puncture is made between the third and fourth or the fourth and fifth lumbar vertebræ, immediately below the spinous process, a little to one side of the median line, the needle passing between the arches of adjoining vertebræ through the dura into the spinal canal. The terminal cone of the cord is situated at the level of the first lumbar vertebræ, and if a puncture is made below this point it is not likely that any of the divergent strands of the cauda equina will be injured. When the puncture is made the patient's body should be bent forward. In semi-comatose children and in adults narcosis is not required, and aspiration is not necessary, because the liquor cerebro-spinalis will ooze out drop by drop or squirt out if it is under much pressure.

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* Communicated, with a demonstration of an anatomical specimen and a brief report of four cases, at a meeting of the American Pædiatric Society held in Hot Springs, Virginia, May 28, 1895.

Quincke first tapped in order to relieve pressure symptoms in acute hydrocephalus, and recommended the procedure as a means of distinguishing between serous, purulent, and tubercular meningitis. Von Ziemssen and Lichtheim subsequently reported a number of cases in which tapping had been done. They professed to have found less albumin in brain tumors than in basilar meningitis, also a sugar reaction in brain tumors, but none in meningitis. Pus cocci and tubercle bacilli were positively found. Freyhan, Dennig, Heubner, Senator, Ewald, and others have reported cases. A. Fraenkel speaks of the disappearance of choked disk after tapping the spine in encephalitis. Fürbringer, of Berlin, reports eighty-six cases, and in thirty-seven cases of tubercular meningitis, one of which ended in recovery, he professes to have found the tubercle bacillus twenty-seven times. In two cases of hæmorrhage into the lateral ventricle blood was found in the spinal fluid. In tubercular meningitis the fluid is invariably clear and limpid; in other forms of meningitis it is cloudy or turbid. One tapping in a case of leptomeningitis gave pure pus. In brain tumors, basilar meningitis, and uræmia from various causes no improvement was noticeable after tapping. A full report concerning the method will be found in No. 13 of the *Berliner klinische Wochenschrift* for 1893.

My personal experience is limited to four cases. In the first two cases, in children three and five years of age respectively, suffering from tubercular meningitis, tubercle bacilli were found sparingly in the flaky sediment of the liquor cerebro-spinalis that subsided after standing for twenty-four hours. These cases, however, passed from under my observation, and I am unable to furnish further particulars. They probably terminated in the usual way. The third case is now under my observation in the babies' ward of the Post-graduate Hospital. A child of nine months, with the symptoms of tubercular meningitis, was admitted in convulsions and tapped by me a few days ago. Twenty-five cubic centimetres of a clear and limpid liquid were removed.

My procedure in tapping is as follows: After locating the third and fourth lumbar vertebræ I place the middle finger of my left hand upon the spinous process of the third and the index-finger on the spinous process of the fourth lumbar vertebra, pressing firmly upon the bone. I now mark with the nail of my right index-finger the interspace between the two fixed points and puncture precisely in the median line with a large-sized hypodermic needle attached to its syringe, which is merely used as a handle and not for the purpose of aspirating. No undue force should be used in propelling the needle forward; it readily enters the spinal canal and can be moved about freely if it is in the right place. The syringe may now be unscrewed from the needle, which remains *in situ* and permits the fluid to escape into a sterilized bottle for subsequent examination. In my last case the liquid oozed out in large drops. Liquor ammoniæ held to the nostrils of the semi-comatose child increased the flow. After the liquid stopped running it was found that the pupils were equal in size, whereas before the tapping the right pupil had been larger than the left one, with hardly any reaction to light. The spinal fluid was submitted to Dr. Schwytzer, pathologist, for examination, who reports that many tubercle bacilli were found. At the time of this writing the patient remains in about the same condition as before the tapping.

Since reporting these three cases I have tapped once at the German Hospital in a case of acute mania following ether narcosis, in a woman thirty five years old, who now, in the third week of her illness, shows elevation of temperature and symptoms of cortical irritation, particularly choreiform movements of the upper extremities. The patient was tapped without narcosis, sitting in bed in a stooping posture, firmly supported by two nurses. The needle entered the vertebral canal at a depth of four centimetres and was inserted a little to the right of the median line. Fifty cubic centimetres of a very clear liquid were allowed to run out. On minute examination of this fluid, our pathologist, Dr. Schwytzer, found it sterile and containing 0·20 per cent. of sugar. The subsequent history of this case, in detail, will probably be published. In this connection I would emphasize the fact that the patient must not be permitted to make active movements after the needle is *in situ*, as there is danger of its breaking.

In conclusion, I would express the opinion that tapping the spine may safely be employed to relieve pressure symptoms in various forms of disease. In chronic hydrocephalus it is a safer procedure than tapping the cranium. For diagnostic purposes the value of this procedure is firmly established.

RESECTION OF THE COLON FOR ADENO-CARCINOMA.*

By W. S. MacLaren, M. D.,
LITCHFIELD, CONN.

Although the chief interest attaching to these specimens is centred in the one which came into my hands a few days ago, successful resections of the intestine so low down as the sigmoid flexure are sufficiently rare to warrant me in going, somewhat in detail, over the history of this case:

I was first called to see this patient on April 13, 1894. I found Mr. C. L., farmer, native born, aged forty-five, who gave the following history:

Family History.—Good.

Previous History.—Ever since boyhood he has been liable to attacks of colic following any slight indigestion. They have never been severe, have lasted only a few hours, were relieved by pressure, and never have been accompanied by any distention. These attacks have been very frequent, occurring as often as once each month. The colic has never been localized. It never has been accompanied by vomiting, nor by constipation, nor by diarrhœa. His bowels had always been regular, but had acted peculiarly: on going to stool they would move promptly but scantily and without giving any great feeling of relief, and yet no amount of straining could bring away anything further; after waiting five or ten minutes there would be a second small movement which would come without any effort. There was always this double movement of the bowels and occasionally there would be a third.

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* Read before the Society of Alumni of Bellevue Hospital, May 1, 1895.

Present Illness.—Six weeks before my visit he had a severe attack of colic, during which he vomited slightly. There was no distention, and a mild cathartic took speedy effect and relieved all the symptoms.

The whole duration of this attack was about three days. Four weeks later there was a similar attack. He took cathartics freely, but only had a small movement each day. For the two days prior to my visit there had been no movement of the bowels at all, and finally, becoming alarmed, he sent for me. I found him poorly nourished, but with no appearance of cachexia. Temperature, 98·8°; pulse, 84. Abdomen flat. Percussion tympanitic, except over the sigmoid, where there was slight dullness. Palpation did not reveal any tumor. Peristalsis was not constant, but was exaggerated and accompanied by pain and borborygmus.

Rectal examination was negative. High enemata brought away small particles of fæces, and finally caused a small movement. High enemata were given each day and always secured a small movement. On the fourth day flatus was passed quite freely and pain ceased to be marked. On the tenth day, though small movements were still secured and flatus passed freely, pain was still present and the borborygmus persisted. As it was evident that partial obstruction persisted an operation was advised and refused. On May 6th, twenty-three days from my first visit, obstruction became complete, it was not possible to bring away any fæcal matter by the enema, flatus ceased to be passed, and the abdomen was slightly distended.

May 7th.—Abdomen more distended. I again urged an operation, and, as pain was becoming very severe, I obtained consent, and with the assistance of Dr. J. L. Buel and Dr. J. T. Sedgwick, of Litchfield, I operated in the usual manner, making a four-inch incision one inch to the left of the median line. On introducing my hand the constricted portion was at once felt and drawn into view. The obstruction was found to be caused by a dense fibrous construction about an eighth of an inch in width. The intestine above and below appeared normal. There were two small hard nodules in the neighboring mesocolon. The whole appearance was so suggestive of malignancy that I decided upon complete removal of the diseased part as the only course open. The shortness of the mesocolon at this point made removal difficult, but by depressing the abdominal wall I was able to get clear of the diseased portion, and removed about three inches of the colon and sigmoid.

I did the ordinary end-to-end operation, using silk sutures. The nodules in the mesocolon were also removed. As there was no leakage from the intestine during the course of the operation, the abdominal cavity was not flushed; but the sutured intestine was irrigated with saline solution and dropped back. Abdomen closed with silk sutures. At the close of the operation the temperature was 100·4°, pulse 120. A soft-rubber rectal tube was inserted its full length and kept in place for a week, at the end of which time the bowels were moved freely by cathartics.

The highest temperature was 101° for a few hours on the second day. At no other time was it higher than 100·4°. It reached normal on the fourth day. The pulse was normal after the third day.

The patient made a good and rapid recovery, gained flesh and strength, and in two months from the operation was working in the hayfield. He never had another attack of colic, and his bowels emptied themselves promptly and naturally. The specimen was examined by Dr. Ferguson, of New York, and found to be adeno-carcinoma.

Six months after the operation the patient began to have slight pain over the liver. This soon became more marked, though it did not interfere with his activity. He then began to lose flesh again, gradually became weaker, and finally died just one year after the operation, lacking two weeks. The autopsy was held thirty-six hours after death. The thoracic viscera were normal. The entire liver was indurated and its surface studded with nodules about an inch in diameter and with slightly depressed centres. The convexity of the sigmoid flexure was adherent to the abdominal cicatrix. There were no other adhesions. The intestinal cicatrix was not apparently contracted or thickened. There was a large, hard nodule in the mesocolon below the cicatrix. There was another smaller nodule in the wall of the intestine a short distance from the cicatrix.

A CASE OF

POSTERIOR SPINAL SCLEROSIS,

WITH UNUSUAL PRODROMAL OCULAR SYMPTOMS.

By C. H. CHUBB, M. D.,
PALENVILLE, N. Y.

I present the following case on account of the supposed rarity of the eye symptoms, which preceded by at least a year the development of other characteristic features of the disease, and by a much longer period the loss of the knee-jerk and other reflexes:

In March, 1881, I saw Mr. G., aged sixty years, miller, an intelligent business man of good habits and free from syphilitic taint. An uncle was said to have died of cancer of the stomach, and a brother died at the age of sixty of primary cancer of the liver under my care, the diagnosis having been confirmed by an autopsy and microscopic examination. His mother was said to have died of rheumatism, and some form of paralysis "which rendered her helpless."

The symptoms presented were at once strongly suggestive of posterior spinal sclerosis—viz., sharp, lightning-like paroxysmal pains in the lower extremities, together with a sensation of coldness and firm pressure, "as of a stick of wood across the shins"; the patellar reflex was slightly if at all diminished.

Learning that the patient had had some eye troubles for which he had consulted the late Dr. C. R. Agnew, I wrote to the doctor, describing the condition of the patient and inquiring as to the result of his examination. In reply I received a note from his colleague, Dr. David Webster, from which I make the following quotations:

"Examined Mr. G., aged sixty years, on April 22, 1880. Dark spot before left eye for two months; can see sideways. The eye has a central scotoma, about two inches in diameter, at a distance of one foot. Ophthalmoscopic examination shows no lesion that would explain the scotoma. There is a slight erosion of the chorioid at the temporal edge of the disc; in the left eye there is smart pulsation of the vena centralis retinæ. . . . From the light thrown on the case by your observations I have no doubt that the scotoma was due to disease (sclerosis, perhaps) affecting the optic nerve fibres which supplied the region of the left macula at their origin either in the brain or spinal cord."

It is to be noted that this symptom disappeared in about two months without special treatment, and did not return. The only other eye symptoms noted were transient double vision and iridoplegia, both of which came on late in the course of the disease.

It is unnecessary to give a detailed account of the case, which extended over a period of fifteen years; suffice it to say that the evidences of the correctness of the diagnosis steadily accumulated—for instance, the loss of the knee-jerk, the straddling gait, extension of the fulminating pains to the upper extremities and to the trunk, girdling sensations at the waist, sensations of pressure at different parts of the trunk, also of cold and heat, sparks of fire, red-hot wires, tingling, numbness, etc., particularly in the arms and hands; also disturbed cardiac rhythm, without evidence of valvular disease. Visceral crises, both bronchial and gastric, were quite pronounced. One of the latter was of a noteworthy character, consisting of the eructation of from one to two quarts daily of a brownish, glairy fluid, together with a small portion of the ingesta, without pain or nausea, continuing for several weeks, then ceasing suddenly. This matter was submitted to Dr. Willard and Mr. Beach, of Catskill, for microscopic examination. They reported the absence of either tubercle bacilli, sarcoma, or other evidence of malignancy, which from the family history there was some reason to suspect.

Extreme inco-ordination developed rapidly in the latter stages, affecting both the upper and lower extremities, the former in even greater degree than the latter. As the patient well expressed it, his limbs were no longer under the control of his will. Toward the last the same condition extended to the bladder and rectum, requiring the use of the catheter to remove residual urine.

At no time did the urine contain albumin, but sugar was temporarily present in small quantities. With the gradual failure of strength, œdema of the ankles appeared, while the fatal issue was hastened by œdema of the lungs. Death occurred at the age of seventy-five years, about fifteen years after the first prodromal eye symptoms were noted. Much to my regret, an autopsy could not be obtained.

The case is a striking piece of evidence of the importance of the eye symptoms in these cases, and of the value of an early ophthalmoscopic examination, even though, as in this case, the information obtained should be of a negative character.

A CASE OF RICKETS,

WITH EXAGGERATED MOUTH SYMPTOMS.

By HENRY D. WHITE, M. D.,
RUTHERFORD, N. J.

During the past winter the following case came under my notice which displayed symptoms which to me seemed so exaggerated that I thought it might be of interest to others:

The patient was a child eight months old, born of healthy parents. Mother is a nervous, irritable woman, and was unable to nurse the child. When he was about four weeks old he was put upon malted milk, which seemed to agree perfectly. He gained steadily in weight, bowels kept regular, and in every respect the child was the picture of health. One day in moving he gave a sudden cry, which no amount of persuasion would stop, and he continued crying for about three hours. He finally quieted down, but any attempt to move him, and especially his right leg, caused him intense pain. On examining the limb, nothing abnormal was found except extreme sensibility on motion. As it was thought to be only a strain, local applications were used, and after about one week the sensibility began to decrease, but at the same time the gums about the upper incisor teeth began to swell and became very much congested. During all this time his appetite remained good, his bowels regular, but he was more restless than usual. The child had always been in the habit of kicking his legs very much, but it was now noticed that he would not use them at all. He now began to lose a little flesh, and he became pale and the face had an anxious expression. The slightest touch on the gums produced large blood blisters, and they became so enlarged that he could not close his lips over them. After a very careful examination it was finally decided that we had a case of rickets to deal with due no doubt to the lack of animal food. He was at once put on sterilized milk, the modified Meigs's mixture being used. His temperature at this time varied from 100° to 102° F., with an occasional exacerbation, when it went up as high as 105° F. He was also given cod-liver-oil baths, which, however, had to be discontinued, as they produced a very marked acne. Also given bovinine, Valentine's meat juice, the juice from raw beef, and in addition twenty drops of compound syrup of the hypophosphites. For the gums an antiseptic mouth wash containing a considerable amount of sulphocarbolate of zinc.

In three weeks' time after beginning the sterilized milk a marked improvement took place. The temperature dropped to normal and remained there. The pain in the bones decreased, and the gums took on a much healthier condition.

At the present time, which is about two months after the radical change in the diet took place, the gums have gone back to their normal condition, the child has begun to take on flesh rapidly, and there is absolutely no tenderness in the bones.

The thing which struck me so forcibly was the extreme hypertrophy of the gums, which reached such a degree as to entirely cover the teeth and cause quite a marked deformity to the mouth. The symptoms which are usually the most prominent in this disease were either not present or only to a very slight extent. The fontanelle seemed a trifle larger than it should be in a child of his age, but still there was no marked increase in its size, nor was there any increase in the size or change in the shape of the head. There was some sweating of the head, but it was not marked. The rhachitic rosary was only made out on the very closest examination. There was no deformity in any of the bones.

I would also call attention to the very rapid improvement in all the symptoms which took place on the institution of a strictly animal diet.

I have been unable to find anything in any of the reference books which I have been able to obtain that makes very much allusion to the mouth condition present in this case.

The Litchfield County, Connecticut, Medical Association will meet in Norfolk on July 9th, under the presidency of Dr. Frederick H. Wiggin. Papers are expected to be read by Dr. W. H. Welch, of Baltimore; Dr. W. H. Porter and Dr. L. D. Bulkley, of New York; Dr. G. H. Knight, of Lakeville, Conn.; and Dr. M. S. Goodwin, of Thomaston, Conn.

Attendance on Women in Instrument Shops.—Women who visit the instrument-makers' shops to be fitted with trusses, elastic stockings, or the like, ought to be able to find a woman in attendance. The W. F. Ford Surgical Instrument Company, of New York, has recently provided such an attendant for its establishment.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, JUNE 15, 1895.

THE LUNATIC ASYLUMS OF THE COUNTY OF NEW YORK.

The county of New York—that is to say, the city—contributes about $2,000,000 a year toward the maintenance of the State lunatic hospitals, and in addition supports its own institutions for the care of the insane. The way in which these institutions are managed has been the subject of frequent censure, and this criticism has lately been ratified, so to speak, by the State commissioners in lunacy. In consequence of all this there is an almost unanimous feeling in the community that the care of the city insane ought to be given over to the State. A bill having this as its object was passed by the Legislature at its recent session, but it falls under the head of certain measures which, according to the new State constitution, can not become operative until they have received the approval of the mayor of the city to which they apply, as well as that of the governor of the State, unless enacted a second time by the Legislature. Now the Legislature is no longer in session, the mayor of New York has failed to certify his approval of the bill, and the governor has only until Saturday to give it his approval, even if he had it with the mayor's signature. In the face of this muddled situation the commissioners in lunacy are pressing the governor to put his name to the bill and trust to future legislative action to render it operative. It seems hardly likely, however, that the governor will feel himself warranted in pursuing such a course, and it is doubtful if it would be of any avail if he did; the probability is, therefore, that the city will have to go on for at least another year under the old state of things, paying roundly for what is of no benefit to it, as well as for the continued maintenance of its own discreditable asylums.

The responsibility for this unsatisfactory situation seems to rest upon the mayor, and we can conceive of only one good reason for the part he has taken in the matter, and that is an intention to make the county asylums what they ought to be, coupled with a well-founded conviction of his ability to do so. If this can be accomplished, there is still another requirement that will have to be fulfilled before the great expense incident to the policy can be justified—namely, the establishment of a satisfactory system by which the asylums in question shall be made available for the clinical teaching of psychiatry, a branch of medicine in which the New York medical schools have at present no adequate means of instruction. If this can be remedied, and at the same time the city's pauper insane provided for as well as they could be in the State hospitals, the mayor will deserve the gratitude of the community in spite of the pecuniary burden on the city.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 11, 1895:

DISEASES.	Week ending June 4.		Week ending June 11.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	6	3	10	5
Scarlet fever	90	17	64	14
Cerebro-spinal meningitis	4	4	3	2
Measles	348	44	378	39
Diphtheria	195	45	227	36
Small-pox	1	1	0	0
Tuberculosis	51	107	110	115

The Appleton Prize, consisting of twenty-five dollars' worth of medical publications, offered annually by the firm of D. Appleton & Co. to the candidate passing the best examination before the board of medical examiners of the State of North Carolina, was won this year by Dr. Lee Cohen, of Baltimore, who had a percentage of 97·57.

The Late Dr. Matthew D. Field.—The Society of Alumni of Bellevue Hospital has adopted the following resolutions:

Whereas, Death has removed our fellow-member, Dr. Matthew D. Field.

Resolved, That the Society of Alumni of Bellevue Hospital have lost a valued and representative member whose devotion and interest did much to advance the society.

Resolved, That we extend to his family our sincere sympathy in their great loss.

Resolved, That a copy of these resolutions be entered on the minutes of the society, and that they be published in the New York medical press.

[Signed.]
Wisner R. Townsend, *Chairman.*
William B. Anderton,
Gorham Bacon.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 2 to June 8, 1895:*

Ebert, Rudolph G., Captain and Assistant Surgeon. So much of the order as directs him to report in person to the commanding officer, Fort Columbus, New York, for duty at that post, is amended to direct him to report for duty at Vancouver Barracks, Washington, relieving Arthur, William H., Captain and Assistant Surgeon. Captain Arthur, on being thus relieved, will report for duty at Fort Columbus, New York.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending June 8, 1895:*

Biddle, Clement, Passed Assistant Surgeon. Detached from the Naval Hospital, Chelsea, Mass., and ordered to the Naval Station, New London, Conn.

Gardner, J. E., Surgeon. Detached from the Naval Station, New London, Conn., and directed to await orders for sea duty.

Neilson, J. L., Surgeon. Detached from the Navy Yard, Boston, Mass., and ordered to the U. S. Revenue Steamer Wabash.

Rogers, Franklin, Surgeon. Detached from the U. S. Revenue Steamer Wabash and ordered to the Navy Yard, Boston, Mass.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Sixteen Days ending May 31, 1895:*

Hamilton, J. B., Surgeon. Granted leave of absence for five days. May 16, 1895.

Stoner, G. W., Surgeon. Granted leave of absence for one day. May 22, 1895.

Mead, F. W., Surgeon. To proceed to Portland, Me., and assume command of service. May 18, 1895.

Kinyoun, J. J., Passed Assistant Surgeon. Granted leave of absence for seven days. May 20, 1895.

Woodward, R. M., Passed Assistant Surgeon. Granted leave of absence for thirty days. May 23, 1895.

Young, G. B., Passed Assistant Surgeon. Detailed to make physical examination of officers of Revenue Cutter Service. May 24, 1895.

Rosenau, M. J., Passed Assistant Surgeon. To proceed to Staunton, Va., for special temporary duty. May 17, 1895.

Norman, Seaton, Assistant Surgeon. To rejoin station at Baltimore, Md. May 25, 1895.

Prochazka, Emil, Assistant Surgeon. To proceed to Cleveland, Ohio, for temporary duty. May 25, 1895.

Society Meetings for the Coming Week:

Monday, *June 17th:* American Laryngological Association (first day—Rochester); New York County Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society; Cleveland, O., Society of the Medical Sciences.

Tuesday, *June 18th:* Colorado State Medical Society (first day—Denver); American Laryngological Association (second day); Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Society of the County of Kings, N. Y.; Baltimore Academy of Medicine.

Wednesday, *June 19th:* Colorado State Medical Society (second day); American Laryngological Association (third day); Medico-legal Society, New York; Northwestern Medical and Surgical Society of New York (private); Medical Societies of the Counties of Alleghany (annual) and Tompkins (annual—Ithaca), N. Y.; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

Thursday, *June 20th:* Minnesota State Medical Society (first day—St. Paul); Colorado State Medical Society (third day); New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

Friday, *June 21st:* Minnesota State Medical Society (second day); Baltimore Clinical Society; Chicago Gynæcological Society.

Saturday, *June 22d:* Minnesota State Medical Society (third day); New York Medical and Surgical Society (private).

Births, Marriages, and Deaths.

Married.

Bradley—Tracy.—In Buffalo, on Thursday, June 6th, Dr. Henry Hobart Bradley and Miss Nina Felicita Tracy.

Gilray—Pettit.—In Buffalo, on Wednesday, June 5th, Dr. E. J. Gilray and Miss Jessie Pettit, daughter of Dr. and Mrs. J. A. Pettit.

Harris—Sarpy.—In New Orleans, on Saturday, May 25th, Mr. Alexander Harris, Jr., and Miss Emilie Sarpy, daughter of Dr. Émile Sarpy.

Johnson—Gaddis.—In New York, on Thursday, June 6th, Dr. Joseph Lester Johnson and Miss Gaddis.

Kendall—Armstrong.—In Toronto, on Thursday, June 6th, Dr. Charles A. Kendall, of Buffalo, and Miss Edith Armstrong, daughter of Dr. Armstrong, of Toronto.

Newman—Woodward.—In Brooklyn, on Wednesday, June 5th, Dr. Alvah Milton Newman and Miss Georgia Woodward.

Reyburn—Mercer.—In Pittsfield, Mass., on Thursday, June 6th, Mr. Amédée Vallé Reyburn and Miss Charlotte M. Mercer, daughter of Dr. William M. Mercer.

Rose—Zeiller.—In Montgomery, Ala., on Wednesday, June 5th, Dr. E. J. Rose, of Cincinnati, and Miss Juliet Zeiller, of Montgomery.

Saunders—Hardin.—In New Orleans, on Thursday, June 6th, Dr. Dudley Saunders, of Memphis, and Miss Wylodine Hardin.

Died.

Mack.—In Salem, Mass., on Sunday, June 9th, Dr. William R. Mack, aged eighty-one years.

Meeks.—In New York, on Sunday, June 9th, Dr. Edwin J. Meeks, of Stamford, Conn., in the thirty-first year of his age.

Pope.—In New York, on Tuesday, June 11th, Dr. Alexander B. Pope, aged thirty-three years.

Rathgeber.—In New York, on Wednesday, June 5th, Dr. Eugene Albert Rathgeber.

Wallace.—In New York, on Friday, June 7th, Dr. Alphonse M. Wallace.

Wallace.—In New York, on Friday, June 7th, Dr. William B. Wallace.

Letters to the Editor.

THE CREOSOTE TREATMENT OF TUBERCULOSIS.

Littleton, N. C., *June 5, 1895.*

To the Editor of the New York Medical Journal:

Sir: Dr. Conway's article in your issue of June 1st, on Creosote as a Specific in Tuberculosis, calls to mind a case treated two years ago which, with your permission, I will briefly report on account of an unusual occurrence during the course of treatment—viz., deafness:

Mrs. E. B., aged about thirty-two years, family history phthisical. Father, mother, and only sister died of phthisis. Two brothers living who have coughs (presumably phthisical). She consulted me in August, 1892, for troublesome cough. Weight then, one hundred and eighteen pounds. She was a sufferer from chronic bronchitis, an acute attack lighting up on the slightest exposure to cold air. There was also chronic rhinitis, for which she was using some nostrum. The temperature taken morning and evening was 99·5° and 101° F. respectively. Respiration 20+, pulse 96 to 100. There was partial consolidation of the left upper lobe. The lung had not begun to break down, nor were there any cavities. No examination of sputa made. The treatment was with creosote, one minim, and compound tincture of gentian, a drachm thrice daily, increasing the creosote by one drop every third day until ten minims were taken three times daily. All other treatment suspended. Her appetite was good, and as she had not lost much flesh no tonics were given. Instructions were given to weigh herself twice a week and report. This was continued for some time, but was finally stopped. The ten-minim dose was taken for nearly two years, with diminution and final disappearance of cough. She has had no attacks of bronchitis. The consolidation resolved. Her appetite has remained good, and she has gained in weight. She weighs one hundred and thirty-five pounds now. She considers herself cured. Two months before discontinuing the creosote she noticed her hearing was failing, it being difficult to hear the voices of her friends in ordinary conversation. My attention was finally called to this, and I ordered the creosote stopped. Her hearing was difficult for several months, when gradual improvement was noted, and now, eight months after, it is nearly normal. I was also surprised to note that the catarrh which was so troublesome had disappeared too. Before, she could not sleep on her left side on account of difficulty in breathing through the right nostril. Now she sleeps equally well on either side. Her son, aged twelve years, was given the same dose as herself for the same period, and he became deaf, though on stopping the creosote the improvement was not so rapid as in the first case. In this case the mother, thinking her son would also have the disease, administered it without my knowledge or consent. Physical examination of his chest revealed no indication for creosote.

Searching what literature I have at my command, I fail to find any mention of such a serious occurrence, and I therefore ask those whose experience is greater in this line than mine if such has been observed. No mention of it was made in Dr. Conway's article, although a larger dose was administered and for a greater length of time. B. RAY BROWNING, M. D.

943 MADISON AVENUE, NEW YORK, *June 3, 1895.*

To the Editor of the New York Medical Journal:

SIR: In the last number of your valuable journal, Dr. John R. Conway, of this city, speaks of four hundred cases of tuberculosis which he treated with "large doses" of creosote. He says that so far he has "not been disappointed in a single case." In reading this article one is struck by the positiveness of the author's statement.

I have been using large doses of creosote since 1887 in the German Poliklinik, where we treat a very poor class of patients of the east side downtown districts; in the Montefiore Home, where the patients are under good sanitary conditions; and in private practice, where they can afford every luxury. But in every class, representing every state of environment, I have been disappointed, not only in a single case, but in many cases. I must, however, state that I do not follow the teachings of Strümpel and Stoerk, who did not obtain good results from using creosote. On the contrary, I still administer it and consider it the best remedy for tuberculosis. But alas! only too often have I been disappointed in using it. How many others have had a similar experience?

Dr. Conway furthermore speaks of "large doses" to be administered, and gives in chronic cases twelve minims, and in others twenty minims, three times a day. I can not call these doses large, especially as Sommerbrodt himself used larger doses as long ago as in 1891. He gave four grammes a day in chronic cases. This example has been followed by a great many physicians, as creosote is used so very largely and extensively. I, too, have used Sommerbrodt's prescription, but found it necessary even to increase his doses. I have given thirty, forty, even sixty drops, three times a day. I have had patients who took eighty and a hundred drops three times a day; yes, one patient took in my office as much as a hundred and sixty drops! (See my article in the *Medical Record* for April 23, 1892.) She felt, as usual, a little nauseated, but took, as accustomed, a short walk immediately afterward, and felt all right again in a short time. Since then I have not had a similar case, but, as a rule, have found no difficulty in increasing the dose to forty- or fifty-minim doses three times a day. I would recommend this method to every one who uses creosote in his practice. It goes without saying that we must constantly watch the kidneys, etc. (some patients can not take creosote at all). On the other hand, I can only repeat what I said in 1892 (*loc. cit.*): "It (*sc.* creosote) is a substance which mankind can slowly become habituated to, just as arsenic, morphine, alcohol, etc., and *the accumulation thereof in the body has*—as in all my experience—*not been followed by any bad results.*"

We give creosote only when it is necessary, and in such cases the more the patient can take the better for him.

W. FREUDENTHAL, M. D.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Twentieth Annual Meeting, held in Baltimore on Tuesday, Wednesday, and Thursday, May 28, 29, and 30, 1895.

The President, Dr. MATTHEW D. MANN, of Buffalo, in the Chair.

Recent Experience in Ureteral Work.—Dr. HOWARD A KELLY, of Baltimore, described the renal catheter and its uses in the diagnosis and treatment of renal disease. He said that any one at all familiar with urinary diseases could readily call to mind cases of fluid accumulations in the renal pelvis which might have been emptied by the passage of a renal catheter. The instruments which he called renal catheters were fifty centimetres in length, and varied in diameter from one and a half to three millimetres. They were made of silk or of linen, coated with many layers of shellac rubbed down and polished. The catheters intended for immediate use were kept in glass tubes plugged at both ends with cotton. The catheters were sterilized by a 1-to-1,000 solution of bichloride of mercury, and they were kept in an ice-chest for an hour or more before using, in order that they might be sufficiently rigid. After emptying the bladder, a No. 8 or 9 cystoscope was passed in, and the ureteral orifice exposed in the usual way. While this was being done, an assistant caused one end of the renal catheter to protrude from the glass tube, and this end of the instrument was dipped into sterilized boroglyceride. The assistant then held the tube containing the renal catheter over the shoulder of the operator, who seized the end of the catheter and pushed it up through the speculum into the ureteral orifice, and on until a decided sense of resistance was encountered. This indicated that the catheter had touched the upper part of the renal pelvis. It would generally be found that when this point had been reached the instrument had passed in thirty-six centimetres from the external urethral orifice. By covering the outer orifice of the renal catheter with a film of water, the appearance of any urine would be announced by the formation of a bubble at the end of the catheter.

Dr. Kelly then reported several cases illustrating the uses of the renal catheter. The first case reported was that of a woman with an old sinus under the left anterior superior spinous process of the ilium. She had been treated previously for Pott's disease. The renal catheter had shown that there was some obstruction on the left side, for there had been no flow of urine after the catheter had been left in for an hour. Another point noted was that the catheter on the left side did not pass in so far as on the right side by about three or four centimetres.

From these facts it had been concluded that there was complete obstruction of the left ureter in its upper part, and a subsequent operation disclosed an abscess cavity, which was scraped and drained. The patient had made a complete recovery. In another case, one of severe renal colic, there had been found a colon-bacillus infection of the pelvis of the left kidney. The introduction of the renal catheter had proved that the other kidney was sound—one of the most important uses of the renal catheter. In still another case considerable pus was discharged as soon as the renal catheter was introduced. Finding it impossible to sterilize the pelvis of the kidney, he had come to the conclusion that there must be some active cause for this, and he had accordingly cut down upon the kidney. This incision had revealed a calculus of about the size of the end of the finger, situated in the lower part of the pelvis of the kidney. The urine had very quickly become clear after this operation.

In conclusion, the author said that he had been able to ascertain exactly the position of strictures in the upper part of the ureter; to test the permeability of such strictures; to relieve the accumulations above such strictures; to diagnosticate nephrydrosis; to diagnosticate pyelonephritis; to distinguish between these two latter conditions; to distinguish between soft malignant disease of the kidney and fluid accumulations in its pelvis; to determine the exact nature of an infective pyelitis; and to determine its use in the treatment of renal disease by evacuating any accumulation in the renal pelvis at regular intervals.

The author, in reply to questions from several of the members, said that, with the exception of one case in which he had examined under unsatisfactory conditions in New York, he could say that he had never failed to pass the renal catheter, and that its introduction was usually only a matter of from three to five seconds. The method of introducing it without the speculum he had found to be much more difficult, and it possessed the additional disadvantage of being apt to cause injuries of the mucous membrane, and, as a consequence, ureteral fever.

Dr. Alexander J. C. Skene, of Brooklyn, expressed his amazement and admiration at the great simplicity of the method. His own experience had taught him that unless special precautions were taken, especially in cases where there was unilateral disease of the kidney, or where there was septic material in the bladder at the time of the examination, there was great danger of carrying infection into the ureter. He had endeavored to obviate this in part by carrying in a small catheter and washing out the ureter after the orifice had been exposed.

Dr. J. M. Baldy, of Philadelphia, said that with proper light almost any one should be able to catherize the ureter successfully. Failure was chiefly due to improper illumination.

Dr. Kelly said that the most convenient source of light was an electric lamp placed near the symphysis pubis, so that a broad pencil of light could be thrown by a large head-mirror into the speculum at as small an angle as possible. The ordinary Argand gaslight was not suitable for this work. Daylight could occasionally be employed to advantage. For purposes of drainage, soft catheters about thirty centimetres long and of the same diameter as the renal catheters would be found useful. To avoid carrying in infectious material, the ureteral orifices should be cleansed with a pledget of cotton moistened with boric-acid solution.

Further Experience and Observations in Hysterectomy for Fibroids.—Dr. S. C. Gordon, of Portland, Me., read a paper with this title. He said that in the discussion on his former paper on this subject the general sentiment had seemed to be in favor of removing any uterus having fibroids which gave rise to much suffering. The difficulty was to determine just how much suffering would justify surgical interference. The more he did complete hysterectomy, the better satisfied was he with the result. No matter how small a portion of the cervix was left, or how carefully it had been cauterized, there was always risk of leaving septic material in the cervical canal. In his opinion no uterus could long remain normal if it contained a fibroid. But little more time was consumed in doing a complete hysterectomy than in the partial operation. The chief danger from long operations lay in the amount of blood lost, for most cases of shock were really instances of serious results from hæmorrhage. His rule was to operate in all cases as soon as a fibroid was discovered, and he believed that if this rule were adhered to the mortality from complete hysterectomy for fibroids would not exceed three per cent. The size of the fibroid tumor did not by any means determine its capacity for producing suffering and mischief.

For the past twelve years he had used in these operations a continuous suture of catgut, and he had never had occasion to regret its use. The advantages of his method of operating in these cases were: 1. The method was the easiest. 2. By using catgut there was less danger, owing to its elasticity, of strangulating the tissues. 3. With the continuous suture one could always have the blood-vessels under control. 4. If the tissues were fragile from inflammatory action, catgut sutures could be used to almost any extent in the event of annoying bleeding. 5. The absorption of the catgut always took place, so that there was much less danger of fistulæ. In his experience no casualties had followed its use that might not have occurred with any other kind of suture.

(*To be concluded.*)

Book Notices.

A Text-book of Pathology; Systematic and Practical. By D. J. Hamilton, M. B., F. R. C. S. E., F. R. S. E., Professor of Pathology, University of Aberdeen. Copiously Illustrated. Vol. II. London and New York: Macmillan & Co., 1894. Part I. Pp. xxii–515. Part II. Pp. 515 to 1139. [Price, $10.]

The author begins his preface to the second volume with the words: "I feel that an apology is necessary for the long interval which has elapsed between the issue of the first and of the second volume of this work. The labor, however, has proved much greater than I anticipated on commencing the work, and that involved in the production of the present volume has been particularly arduous."

Delays such as that mentioned are of course to be regretted, and indeed we have sometimes thought there was too much of fractional appearance and too little of the complete in medical publication; but when as a result of delay we obtain a work like the second volume of Hamilton's *Pathology* we are almost inclined to recommend its more general adoption, for delay, even if considerable, is a small price to pay for a work so excellent. It is admirable in many ways, and of these not the least is its readableness, for one rather expects a work of this kind and scope to be for reference rather than for continued reading, and yet our reading of it has been a pleasure. Its completeness is more than unusual, and no greater misapprehension can occur than to imagine it merely a work on post-mortem appearances and microscopy, for its matter is anatomical, physiological, and historical as well. Take the consideration of the lungs in Part I, for instance, and first we have fourteen pages of anatomy and physiology and then eight devoted to the pulmonary signs elicited by auscultation and percussion. The nine pages which follow are devoted to functional diseases of the lungs, and finally we come to diseases of the bronchi. The unusual completeness of the work for one on pathology may be illustrated by the consideration of asthma, for in it we find presented and described all the various theories which concern its mechanism, and these, though not uncommon in medical works, are unusual in pathologies. Tuberculosis is another subject most comprehensively handled, and not only its pathology but its ætiology, its relation to other morbid conditions, the causes of death, hæmorrhage, and even something of treatment.

The chapters on the kidney are unusually good, and the consideration of functional albuminuria is as good as it is rare in books of this kind. The examination of the urine is excellently treated of. The number of these unusual and valuable introductions is very great and we can not begin to enumerate them. For example, how many works on pathology contain discussions on the tongue as an index of disease and on the physiology and chemistry of digestion?

Part II is as good as Part I, and the many pages devoted to the anatomy, topography, and physiology of the brain, in addition to its pathology, are of unusual value. A feature of this part, too, is the pathology of skin diseases, also a consideration of malformations and monstrosities. The diseases due to vegetable and animal parasites are exhaustively considered, and "systematic bacteriology," which is included, is a treatise in itself. The illustrations of the book are very numerous and very good, and the bibliography which is appended to each subject is unusually complete.

As a specimen of book-making, too, the work is very good and the type unusually clear. In short, unusual would rather than any other word express our opinion of Dr. Hamilton's *Pathology*, provided it were also understood to convey a meaning in the highest degree commendatory.

Text-book of Diseases of the Kidneys and Urinary Organs. By Professor Dr. PAUL FÜRBRINGER, Director of the Friedrichshain Hospital, Berlin, etc. Translated from the German with Annotations by W. H. GILBERT, M. D., Physician in Baden-Baden, etc. With Commendatory Letter from Sir THOMAS GRAINGER STEWART, M. D., F. R. S. E., Physician in Ordinary to H. M. the Queen, for Scotland, etc. In Two Volumes. Vol. I. London: H. K. Lewis, 1895. Pp. 194.

THIS translation pertains to a part only of the author's original work, and includes a consideration of the medical affections of the kidney.

The first portion of the volume gives a brief *résumé* of the nature and importance of certain prominent symptoms indicated by the quality and quantity of the urine, including albuminuria, hæmaturia, hæmoglobinuria, renal casts, dropsy, and uræmia. An absence of any comprehensive survey of tests is noted, the author stating in regard to albuminuria that "*practitioners should adopt as much as possible the old and reliable procedures of testing for albumin, and should not trouble themselves about small unimportant hazes, but should only reckon with decided deposits, which even at first sight show their importance.*" The author holds that the presence of albumin in the urine is only a single symptom that no more proves renal disease than a systolic murmur at the mitral valve proves organic heart complaint. Albuminuria is divided into five groups: that in healthy individuals with and without special cause; that in different morbid conditions in which the kidneys are healthy, or at least free from evident anatomical lesions; that in febrile complaints; that associated with general and local hyperæmia; and that due to actual disease of the kidneys. The various theories that explain the genesis of albuminuria are reviewed; and the author agrees with Saundby and Pavy that medicinal treatment for those forms of albuminuria that do not endanger life is useless.

The subject of hæmaturia is briefly referred to, while the subjects hæmoglobinuria, renal casts, dropsy, and uræmia receive more extended notice. Uræmia is, after reviewing the theories regarding its nature, designated as a clinical collective name, and the author holds that it is futile with our present knowledge to attempt to establish one sole cause as an explanation of all forms.

The section on circulatory disturbances of the kidneys is the first in the second, or special, part of the volume, and considers kidney disease in Asiatic cholera and in pregnancy and the phenomena of engorged kidney and of hæmorrhagic renal infarct.

The author classifies inflammation of the kidneys as "diffused" and "circumscript"; the first class being subdivided into acute, chronic without decided atrophy, and chronic with decided atrophy and sclerosis. The various forms of these lesions are described, and the author has taken pains to record the opinions published by different observers in regard to their causation.

The final section of this volume treats of affections of the kidneys that lead to suppuration.

The volume has been carefully prepared by a conscientious student, and, while his opinions may not be generally accepted, they will be fairly considered by both American and English physicians.

The translator has been unfortunate in his work. We note "cystical" for *cyclical*, "recrutes" for *recruits*, "scorbut" for *scorbutus*, "monography" for *monograph*, "circumscript" for *circumscribed*, "alcoholists" for *alcoholics*, and "cliniater" for *clinician*. Often the rhetoric is German rather than English, as may be seen in the phrases "more accomplished and precise methods," "much occupied physician," "cliniaters and pathological anatomists have since decenniums," "we reckon diphtheritic nephritis more distinctly to the desquamative kind," "we are dispensed from the ordinary acceptation." And we are somewhat at a loss to understand what is meant by "bacillary epithelium" and "anti-albumin drug." As a rule, however, the author's meaning is apparent even if obscure, and the merits of the work are superior to the occasional faults of the translation.

The Treatment of Wounds, Ulcers, and Abscesses. By W. WATSON CHEYNE, M. B. Ed., F. R. S., F. R. C. S., Professor of Surgery in King's College, etc. Philadelphia: Lea Brothers & Co., 1895. Pp. xii-3 to 197.

IN this volume the author describes the methods that he has employed in order to attain certain results in operative procedures, his text being that suppuration occurring in a wound made through unbroken skin indicates that the surgeon has committed some avoidable errors in his methods. As he says, it will not do, with our present knowledge and experience, to attribute suppuration after an operation to constitutional defects, to bad materials, or to other more or less common excuses, but the surgeon must honestly acknowledge that some error has crept into the manipulations, and search for his fault in order to avoid repeating it. The advantage of a practical acquaintance with bacteriological work is urged, because then the manipulations necessary to keep bacteria out of the wound become automatic.

The classes of wounds, the methods of healing, traumatic fever, septicæmia, pyæmia, phagocytosis, etc., are all described.

The author disinfects the skin by first shaving the surface, then washing it with soap and Sir Joseph Lister's 1-to-20 solution of carbolic acid containing a five-hundredth part of corrosive sublimate; the surface is then saturated with turpentine, and after two or three minutes is again washed thoroughly with soap and the solution by means of a nailbrush. This is done an hour or wo before the operation, cloths soaked in the solution are applied over the operation region, and the procedure is repeated at the time of the operation. Instruments are disinfected by two or three hours' immersion in a five-per-cent. carbolic-acid solution; boiling instruments offers no attractions to the author. He uses towels wet with the five-per-cent. carbolic-acid solution, or 1-to-2,000 corrosive-sublimate solution, and irrigates the wound with these from time to time as an additional precaution.

His criticism of the substitution for sponges of gauze-covered pledgets of absorbent cotton, made by nurses and patients and imperfectly disinfected, is timely.

The treatment of ulcers and of abscesses form the subjects of separate sections, and those lesions are thoroughly described.

The book is essentially practical, and, while it departs from the details of the German school followed in so many American hospitals, it describes plans of treatment that are likely to commend themselves to the generality of American physicians.

Dose-book and Manual of Prescription-writing. With a List of the Official Drugs and Preparations, and also many of the Newer Remedies now frequently Used, with their Doses. By E. Q. Thornton, M. D., Ph. G., Demonstrator of Therapeutics, Jefferson Medical College, Philadelphia. Philadelphia: W. B. Saunders, 1895. Pp. 5 to 334. [Price, $1.25.] [*Saunders's New Aid Series.*]

Part I of Dr. Thornton's book deals with weights and measures and includes the usual matter, as well as a rather unusual number of metric equivalents which are most useful.

Part II is devoted to an elucidation of prescription-writing. The difficulties which attend this task are great indeed, for not only must solubilities be taught and incompatibilities, as well as some things chemical, but, worse than all, medical Latin must be made clear and that, too, not ungenerously. To do these things interestingly is next to impossible, and the nearest approach to a readable chapter on prescription-writing we think occurs in Curtis's *General Medical Technology*. Compared with this Dr. Thornton's chapter is dry, but only because Dr. Curtis's was exceptional. The chapter otherwise is all that could be desired, and particularly to be commended is the introduction of a list of abbreviations stated to be imperfect and therefore often dangerous. This list might wisely be studied by many practitioners whose habit of abbreviation is not altogether a safe one.

Part III deals with official preparations and forms of prescribing. This portion of the book is very good, and the illustrations add not a little to the usefulness of the text, especially for the benefit of the inexperienced student.

Part IV treats of doses and methods of administration. The latter are well described and usefully illustrated. Then follow the official drugs in order, their preparations and doses as well as the more important of the newer and as yet unofficial remedies. As a dose-book this chapter is excellent.

An appendix includes a number of questions upon the metric system, with their answers. Though, as we have often said, we dislike the method of teaching by catechism, yet the importance of some knowledge of metric measurements and the widely prevalent ignorance of the subject make the introduction of these questions a wise one.

The work as a whole is a good one, and we congratulate Dr. Thornton upon the success with which he has handled a subject which, though of the greatest importance, is almost hopeless in its dryness.

The Evolution of the Diseases of Women. By W. Balls-Headley, M. A., M. D. (Cantab.), F. R. C. P. (Lond.), Lecturer on Midwifery and the Diseases of Women at the University of Melbourne, etc. London: Smith, Elder, & Co. Melbourne and Sydney: George Robertson & Co., 1894. Pp. xx–375. [Price, $3.75.]

The author states that the plan of this book is to show the conditions of the sexual relations as they have been evolved in the human race, and the position at which they have now arrived, with their influence on woman; and he aims to trace these influences through their progressive stages, so far as they have tended in the direction of disease, and to indicate the modes of prevention of both the cause and the disease, not only in the social but also in the medical aspect.

Marriage he considers the normal condition of woman; but the tendency of man is toward less work and longer periods of relaxation; his personal leisure and inclination for marriage are in direct antagonism; he encourages prostitution, and should he marry he endeavors to limit or prevent progeny. The deficiency of marrying men brings individual women into greater rivalry, or makes them work for their living; the latter calls for a high mental education that is at the expense of their bodily development and sexual strength. In the independent grades of society woman was never so free, so well cared for and tended as at present; among the unprovided for and unselected, never more hopeless and hard-worked.

The author has examined the statistics of Australasia, and has found that at the age of twenty and upward twenty-eight per cent. of the women are unmarried; at thirty and upward, twelve per cent.; at forty and upward, ten per cent. Statistics prove that an old man's opportunity of marrying a young wife is rapidly increasing. The birth-rate and the number of children born to a marriage have decreased in the last twenty years. Women desire to have children and to perform their sexual function, but disease induced by delayed marriage may have rendered this impossible.

The author believes that in the present state of civilization a large number of women can not marry, that this number will increase, that there will be an increase in concubinage, in illegitimate births, and in child-mortality in consequence of neglect. He holds that it is the duty of the girl who intends to become a wife and of the wife to her husband, to be healthy.

After considering the influences of civilization on the sexual relations, the development of the sexual organs of women is reviewed as a prelude to the discussion of their diseases.

The author adopts Emmet's old views regarding the injurious effects of laceration of the cervix uteri on the woman's health.

Anteversion, retroversion, and lateroversion and flexion are said to be due to tight-lacing in many cases, and sometimes to unsatisfied sexual desire. The latter, while it may be a cause occasionally, is an unfortunate one to bring into prominence, for a woman who has suffered from any of these conditions and learns its cause from her physician, may throw prudence and self-control to the wind and easily find a means—and would it always be curative?—to remove that factor in the ætiology of her suffering.

The various morbid conditions of the genitalia of women are described in an original manner that often indicates that the author has done his own thinking in solving questions connected with these disorders.

His preference for ether as an anæsthetic is to be noted.

The section on treatment is characterized by safe advice as to surgical procedures, and by a brevity and clearness in description that enable the reader to follow the author's methods of operating easily.

The work can be commended as a safe guide for the student of gynæcology.

A Practical Manual of Mental Medicine. By Dr. E. Régis, formerly Chief of Clinique of Mental Diseases, Faculty of Medicine, Paris, etc. With a Preface by M. Benjamin Ball, Clinical Professor of Mental Diseases, Faculty of Medicine, Paris. Second Edition, thoroughly revised and largely rewritten. Authorized Translation by H. M. Bannister, A. M., M. D., Late Senior Assistant Physician, Illinois Eastern Hospital for the Insane, etc. With Introduction by the Author. Utica, N. Y.: Press of the *American Journal of Insanity.* Pp. xvi–692.

This little volume, written by an alienist, translated by an alienist, and, under the direction of an alienist, printed and bound by the insane, forms a most useful handbook of insanity for the general practitioner. While lacking the exhaustive descriptions, with illustrative cases, of the more extensive treatises on psychiatry, it still presents a clearness of style and excellence of classification which will render it of use to the specialist as well as to the student.

In his definition the author separates mental alienation from insanity in that the latter occurs only in individuals previously sane. The causes of insanity, predisposing and occasional, are treated of in a very thorough manner, and the first section concludes with the description of the individual symptoms of mental aberration.

The chapters which are of particular merit are those treating of the systematized insanities (paranoia) and cerebral neurasthenia. Paranoia is traced through its different stages in a very satisfactory manner. Under cerebral neurasthenia—*i. e.*, nervous exhaustion in a degenerate brain—are placed the many diverse forms which have always caused so much difficulty in the classification of psychological medicine. It includes the imperative conception, with all its phobias, *folie du doute*, the morbid impulses, and obsessions.

The insanities associated with physiological conditions, with local disease, and with general diseases and intoxications are all briefly described.

Altogether, the book can be heartily recommended to any one interested in mental medicine.

A Manual of Organic Materia Medica and Pharmacognosy. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs. Comprising the Botanical and Physical Characteristics, Source, Constituents, and Pharmacopœial Preparations, with Chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. By Lucius E. Sayre, Dean of the School of Pharmacy, etc. With Five Hundred and Forty-three Illustrations, the Majority of which are from Original Drawings. Philadelphia: P. Blakiston, Son, & Co., 1895. Pp. xx–17 to 555. [Price, $4.50.]

The title of this book is almost a review in itself, for a more inclusive title-page could hardly be imagined; our duty therefore is rather to criticise than to describe.

The first eighty-four pages are devoted to pharmacal botany, and in it we find a most excellent presentation of the subject, for the matter is ably and clearly written and affords an insight into a study which, though little affected by the medical profession, is none the less useful.

Then follow the articles of the organic materia medica botanically classified, and, as six hundred and twenty-four drugs are considered, it will be seen that the list has not been limited to those which are official. In the case of each drug are presented in order its synonyms, botanical characteristics, habitat, description, constituents, action, uses, and preparations. Then follow the animal drugs treated in the same way.

It has given us much pleasure and satisfaction to read these pages, for we feel that thereby we have made the happy acquaintance of drugs which before had been but names to us. This result is largely due to the great number of illustrations and their admirable character, and, at the same time, due also to the able classification and arrangement of the matter, a classification and arrangement which constitute a clear and succinct and above all an orderly presentation of the subject. It is not our intention to enter into a discussion of the part which medical botany should or should not play in the education of the physician; there are things to be said both for and against it, though the latter are rather the result of necessity than of choice. If one desires knowledge of this kind, however, he can not do better than to obtain Dr. Sayre's book, for in it he will find interest and instruction most plentiful. As for the pharmacist, we feel sure the work will be invaluable to him.

Traité élémentaire de clinique thérapeutique. Par le Dr. Gaston Lyon, chef de clinique médicale à la faculté de médecine de Paris. Paris: G. Masson, 1895. Pp. xi–964.

Dr. Lyon's book is useful, not because it differs in any great degree from many other works on applied therapeutics, but because it is ably written and is the most recent presentation of the treatment in use in France to-day. The volume abounds in prescriptions of value, and the practitioner will find it an excellent companion to the familiar works on this subject in our own tongue.

BOOKS, ETC., RECEIVED.

The History of Prostitution. Its Extent, Causes, and Effects throughout the World. By William W. Sanger, M. D., Resident Physician, Blackwell's Island, New York City, etc. With Numerous Editorial Notes and an Appendix. New York: The American Medical Press, 1895. Pp. xiv–17 to 709.

The Female Offender. By Professor Cæsar Lombroso and William Ferrero. With an Introduction by W. Douglas Morrison, Her Majesty's Prison, Wandsworth. Illustrated. New York: D. Appleton & Co., 1895. Pp. xxvi–313.

Demon Possession and Allied Themes. Being an Inductive Study of Phenomena of our own Times. By Rev. John L. Nevius, D. D., for Forty Years a Missionary to the Chinese. With an Introduction by Rev. F. F. Ellinwood, D. D., Secretary of the Board of Foreign Missions of the Presbyterian Church, etc. With an Index, Bibliographical, Biblical, Pathological, and General. New York: Fleming H. Revell Company, 1895. Pp. x–482. [Price, $1.50.]

From Weakness to Strength. By W. E. Forest, M. D. New York: The Health Culture Company. Pp. 2 to 74.

Report of the American Humane Association on Vivisection and Dissection in Schools. 1895.

Annual Reports of the Managers and Officers of the State Hospitals of New Jersey for the Year ending October 31, 1894.

Camphor-menthol. A Supplementary Report. By Seth Scott Bishop, M. D., of Chicago. [Reprinted from the *Journal of the American Medical Association.*]

Le phénol sulforiciné dans la tuberculose laryngée. Par Albert Ruault, médecin de la clinique laryngologique de l'Institution nationale des sourds-muets de Paris, etc. Paris: G. Masson, 1895. Pp. 5 to 91.

The Eye in its Relation to Health. By Chalmer Prentice, M. D. Chicago: A. C. McClurg & Company, 1895. Pp. 7 to 214.

La diphthérie au pavillon d'isolement de l'hôpital Lariboisière, et son traitement par le sérum de Roux. Par le Dr. Gouguenheim, médecin de l'hôpital Lariboisière. [Extrait de *l'Annales des maladies de l'oreille, du larynx, du nez et du pharynx.*]

Improved Double Retractors. By Seth Scott Bishop, M. D. [Reprinted from the *Chicago Medical Recorder.*]

Grippe, and its Effects on the Nose, the Throat, and the Ear. By Seth Scott Bishop, M. D. [Reprinted from *Medicine.*]

Miscellany.

The Mitchell District, Indiana, Medical Society.—The forty-seventh semi-annual meeting will be held in West Baden, Orange County, on July 5th and 6th, under the presidency of Dr. Joseph Eastman, of Indianapolis. The preliminary programme includes the following titles: Legislative Medicine, by Dr. W. R. Allison, of Peoria, Ill.; The Disastrous Effects following Whitehead's Operation for Piles, and the So-called American Operation, by Dr. Edmund Andrews, of Chicago; A Plea for Surgical Interference in Malignant Growths, by Dr. A. C. Bernays, of St. Louis; Ophthalmia Neonatorum, by Dr. A. Blitz, of Indianapolis; Serotherapy in Surgical Tuberculosis, by Dr. George W. Cale, Jr., of St. Louis; Some Wretched Pelvic Cases, by Dr. A. M. Cartledge, of Louisville; The Use of Electricity in the Treatment of Diseases of the Stomach, by Dr. J. M. G. Carter, of Waukegan, Ill.; Puerperal Eclampsia, by Dr. William M. Catto, of Decatur, Ill.; Litholapaxy, by Dr. Samuel Cochran, of Louisville; A Report of Cases, by Dr. F. M. Coomes, of Louisville; Diseases of the Tonsils, and their Treatment, by Dr. Gilbert I. Cullen, of Cincinnati; The Treatment of Corneal Ulcers, by Dr. S. G. Dabney, of Louisville; The Present Status of the Treatment of Stone in the Bladder, by Dr. N. P. Dandridge, of Cincinnati; the President's Address, by Dr. Joseph Eastman, of Indianapolis; Some Points in Connection with Malaria, by Dr. Joseph Eichberg, of Cincinnati; A Report of Cases, by Dr. J. H. Etheridge, of Chicago; The Ocular Symptoms of Kidney Diseases, by Dr. T. C. Evans, of Louisville; A Contribution to the Study of Septic Peritonitis, by Dr. Louis Frank, of Louisville; Glaucoma Illustrated by a Series of Cases, by Dr. R. C. Heflebower, of Cincinnati; Some Common Neurological Misconceptions affecting Surgery, by Dr. Frederick J. Hodges, of Anderson; The Vaginal Douche in Obstetrics, by Dr. B. M. Hypes, of St. Louis; Some Peculiarities of the Symptoms in the Recent Epidemic of Typhoid Fever, by Dr. Frederic Kebler, of Cincinnati; Three Hundred Cases of Railway Surgery, by Dr. Webb J. Kelly, of Galion, Ohio; Advances in Infantile Therapeutics, by Dr. J. A. Larrabee, of Louisville; Head Injuries: their Reparative Powers, especially of the Face, by Dr. John E. Link, of Terre Haute; Craniotomy, by Dr. W. H. Link, of Petersburg; What Operations in Rectal Surgery are Unjustifiable? by Dr. Joseph M. Mathews, of Louisville; The Use and Abuse of the Curette in Gynæcological Practice, by Dr. L. S. McMurtry, of Louisville; Culpable Neglect in Orthopædic Surgery, by Dr. W. V. Morgan, of Indianapolis; The Mechanism of Nervousness in Young Women, by Dr. Frank P. Norbury, of Jacksonville, Ill.; Intra-uterine Treatment—Means and Methods, by Dr. Chauncey D. Palmer, of Cincinnati; Remarks on the Management of Chronic Prostatitis, by Dr. Allen Pierson, of Spencer; Headaches, by Dr. Curran Pope, of Louisville; Pleurisy, by Dr. A. D. Price, of Harrodsburg, Ky.; Gland Tuberculosis, by Dr. Joseph Ransohoff, of Cincinnati; Intestinal Obstruction, with Cases, by Dr. F. W. Samuels, of Louisville; Lesions of the Upper and Lower Segments of the Nervous System: their Significance and Diagnosis, by Dr. Albert G. Sterne, of Indianapolis; Some Recent Experiences with Gold as a Therapeutic Agent, by Dr. Thomas H. Stucky, of Louisville; When to Enucleate in Traumatic Cyclitis, by Dr. Richard P. Taylor, of Louisville; Trephining in Epilepsy, with Cases, by Dr. E. W. Walker, of Cincinnati; Vaginal Hysterectomy *versus* Laparotomy for Pelvic Suppuration, by Dr. William H. Wathen, of Louisville; and Typhoid Fever, by Dr. John E. Woodbridge, of Youngstown, Ohio.

The Antidiphtheritic Serum Therapy.—In the *Mercredi médical* for April 24th there is an article by Dr. Romniciano, of Bucharest, in which he says that the different cases in which these injections have been employed may be divided into the doubtful ones, such as pultaceous angina and follicular and stridulous laryngitis, and cases of croup where the patient has been treated with the usual external and internal antiseptic treatment as well as with the injections. Dr. Romniciano has employed these injections in stridulous or spasmodic laryngitis because it presented at the onset so great a resemblance to croup. The following case has come under his observation: The patient, a child six years old, had attacks of hoarse coughing which gradually became more frequent and were accompanied with suffocation and spasmodic inspiration in the same manner as in croup; the respiration was hurried and the inspiration wheezing. The back of the throat showed a slight redness; the skin was hot and dry, and the temperature was 101·3° F. The author prescribed an injection of serum, but first administered powdered ipecacuanha and a potion of chloroform water, potassium chloride, and benzo-naphthol. The child's neck was wrapped in cotton saturated with a four-per-cent. solution of boric acid at a temperature of 104°, and a five-per-cent. solution of phenol was kept boiling in the room. Soon after the vomiting, which set in very rapidly, the child was relieved and fell asleep. The cough, however, continued hoarse and frequent. On the following morning the child coughed less frequently and the spasmodic inspiration was not so intense. Auscultation of the lungs revealed some mucous and sibilant râles; the throat, although still red, did not show any trace of diphtheritic false membrane. The tongue was coated and the temperature was 100·2°. The treatment was continued, with the addition of eight grains of quinine sulphate. The cough became less frequent and the hoarseness had almost disappeared. In the evening the temperature was 98·3°. The patient passed a very good night and in the morning there was no trace of the cough or any spasmodic inspiration or suffocation. An infusion of polygala and sodium benzoate and 6·4 grains of quinine were given to the child. On the following day, forty-eight hours after the injection of serum, the child was taken with frequent bilious vomiting, and a marked eruption of urticaria appeared on the body. The child urinated frequently, but not abundantly, and the urine was bloody and contained a large quantity of albumin. The temperature was 101·6°. The redness over the site of the puncture disappeared soon after the injection and only a small nodule remained which was scarcely perceptible to the touch. A potion of chloroform water, cocaine hydrochloride, and syrup of ether was administered, also quinine in suppositories, and dry cupping was practised on the lumbar region. The vomiting became less frequent, but the urine was still bloody during the two days that the urticaria persisted. The temperature ranged between 101·6° and

103° and fell gradually to normal eight days after the injection, although the patient had taken twelve grains of quinine hydrochloride every day. Nothing abnormal was found in the other organs during these eight days. The child was very weak after the injection of serum.

Stridulous laryngitis, says Dr. Romnieiano, may be confounded with croup when the attacks of suffocation are very violent, and especially when the croupous cough persists. The mistake may be attributed to the following reasons: 1. In some cases of stridulous laryngitis where the attacks of suffocation and the croupous cough are not always seen by the physician until these symptoms have become very alarming, although sometimes the laryngitis comes on suddenly with violent attacks of suffocation, a croupous cough, violent spasmodic inspiration, and redness of the throat. 2. The mistake may also be made because even in croup the diphtheritic deposits on the tonsils are sometimes absent, and because Loeffler's bacilli are not always found. 3. The rise of temperature which may follow these injections, joined to the persistence of the attacks of suffocation and to the croupous cough, may easily lead to an error in diagnosis.

If to these causes, asks the author, is added the fact that the temperature of all little children may lead to mistakes, should not these injections be practised with the greatest prudence? It is also necessary to act with caution in the treatment of very young infants, because during dentition stridulous laryngitis may appear and be confounded with croup, and aggravated by injections of serum. It is also necessary to watch the temperature carefully after the croupous cough has become less frequent, as it is not always possible to know whether to attribute the rise in temperature to the injections or to broncho-pneumonia, which often follows stridulous laryngitis in little children.

A Dangerous Popular Antiseptic.—Ledermann publishes in the *New York Medical Journal* for May 18th an account of a case of diffuse external otitis, of an extremely severe and resistant type, due to taking a friend's advice and treating a slight itching of the ears with carbolic acid. The strength employed is not known: "some pure carbolic acid was poured into a glass of water and syringed into the ears." Ocular symptoms and carboluria showed the systemic poisoning, and the patient was in great danger of atresia of one of her auditory canals.

The popular knowledge that carbolic acid is an antiseptic is productive of a great deal of harm. The fact that it was the first antiseptic employed by Sir Joseph Lister in wound treatment has been in many ways unfortunate for the human race. Surgeons have until recently regarded it as indispensable to have their instruments in a tray of carbolic solution, which, if strong enough to sterilize the instruments, destroyed the surgeon's hands for practical purposes; and if, as was usually the case, it was so weak as not to actually burn the hands, did no good as an antiseptic—circumstances which were bad for the patient, the surgeon, and all concerned. The disadvantages of carbolic acid, however, can be best seen in out-patient clinics, whither patients continually come with the skin of their hands parboiled and peeling off, exposing the raw subcutaneous tissue more or less eroded by the carbolic acid which a kind friend has advised them to use for a slight cut, or burn, or abrasion. The desirability of ascertaining the strength of what they are using does not occur to them. They are the victims of popular "Listerism" in its most primitive form. If the lay mind could only be made to appreciate that carbolic acid is always dangerous and seldom efficient as an antiseptic, a great deal of unnecessary suffering would be prevented.—*Boston Medical and Surgical Journal.*

Two Cases of Cancer, with Recovery.—In the *Union médicale* for May 4th there is an account of two cases of cancer in which serum therapy was employed. M. Richet and M. Héricourt made an interesting communication to the *Académie des sciences* in regard to this mode of treatment, in which they stated that it could be applied to those affections—such as cancer, for example—of which the microbe had not yet been discovered. The authors made use of an osteosarcoma of the leg, which was first ground and then mixed with water. This liquid was filtered and injected into a donkey and two dogs. The injection was not followed by any reaction, and on the fifth, the seventh, and the fifteenth days after the injection the serum was taken and used in the treatment of the two patients.

The first case was that of a woman who had been operated upon in 1894 for a tumor which presented the appearance of a fibro-sarcoma, of the size of an orange. It had been growing for eight months and it was adherent to the sixth, seventh, and eighth ribs without invading the skin. In February, 1895, the tumor recurred and at the end of a month was again of the size of an orange. The serum treatment was begun on the 12th of March. Injections of three cubic centimetres were made around the tumor and were continued for forty days, the total amount of serum used being a hundred and twenty cubic centimetres. From the 25th of March the tumor began to diminish perceptibly and this diminution became more and more marked until only a hard patch could be felt, the outline of which was difficult to trace. Furthermore, the patient's general condition was ameliorated and she had gained flesh in an appreciable manner.

A tumor of a cancerous nature, says the writer, was thus not only ameliorated, but cured, with serum injections when all other treatment, except that with the knife, would unquestionably have been absolutely powerless.

The second case, although remarkable, did not show such decided results. The patient, who had come under M. Reclus's observation, had a tumor in the lower epigastric region of about the size of an orange, and a diagnosis of cancer of the stomach was made. All surgical intervention having been considered as likely to be ineffectual, the serum treatment was decided upon, and it was begun on the 6th of April with four cubic centimetres of the serum. From this date to the 24th sixty-four cubic centimetres were injected. An amelioration of the patient's general condition followed; the weight also increased a kilogramme in six days, and in seven days more, two kilogrammes. From the tenth day after the injections were begun the tumor diminished in size, and this diminution became rather rapidly pronounced, so that on the 20th of April the tumor no longer felt separate and prominent. Palpation of the epigastric region gave only a sensation of a resistant surface, of a sort of deep puffiness, very vague and difficult to trace.

In the second case, as in the first, the amelioration had been so rapid, so marked, and so indisputable, that, for this reason, might it not be well, he asks, from a prudent point of view, to inquire whether an error had not been made in the diagnosis? However, M. Terrier's communication with regard to the first case is not without its importance, and, according to the authors, the employment of this serum in a case of cancer has resulted in recovery.

The Relation of Medicine to Cycling.—In the *Medical Chronicle* for April Dr. T. N. Kelynack discusses the relation of medicine to cycling. In health the use of the wheel tells most directly on the heart, producing marked quickening of the pulse, which may continue as long as the cyclist is riding. Few attempts have hitherto been made to study the physical development of persons who have been using the bicycle properly for years. Dr. G. M. Hammond, of New York, who has examined a number of cyclists, found in fourteen amateurs who had ridden from five to thirteen years, traveling from five thousand to twenty-seven thousand miles, simple cardiac hypertrophy without dilatation, and a breathing capacity above the average. A careful examination of fourteen celebrated professional bicyclists failed to show any deformity of the spinal column. All had excessive hypertrophy of the thigh and abdominal muscles, cardiac hypertrophy without dilatation, and, except in two instances, a lung capacity above the average. Cyclists, however, are apt to acquire the bad habit of mouth breathing. In disease the use of the cycle is not necessarily to be proscribed. In some cases of cardiac dilatation, slight valvular involvement, and degeneration of the heart muscle, carefully supervised riding on level surfaces may be very beneficial. Varicose veins may also sometimes be relieved by properly regulated cycling. In certain neurotic conditions, especially neurasthenia and hysteria, cycling may be productive of benefit, and it is frequently useful in the treatment of insomnia. Gynæcologists have found cycling advantageous in relieving local pelvic congestion. Carefully regulated cycling may be advantageous in certain affections of the respiratory organs, such as latent phthisis. A cautious and restricted use of the cycle has also proved serviceable in cases of functional dyspepsia and constipation, gout, diabetes, and general anæmia. Dr. Kelynack gives an impartial summary of all the evidence that has so far been collected relative to the evil effects of cycling. Each case must be dealt with individually, but, as a general rule, the following conditions may be looked upon as making the exercise inadvisable: Arteriosclerosis, tuberculosis, emphysema, extensive valvular disease, asthma, affections of the abdomen and pelvis, obesity, epilepsy, and chronic affections of the joints and muscles. Fast and long-distance riding, especially in adolescents, is to be condemned. Straining to climb hills or to meet head winds is injurious. Light, judiciously selected meals should be taken at frequent intervals. The use of alcohol, meat extracts, and such stimulants as coca is to be prohibited. Women should not ride during menstruation. The clothing should be of wool and adapted to the easy and unrestrained movements of the rider. Dr. Kelynack's article presents one of the fairest statements of the case for and against cycling that we have seen, and gives full references to the literature of the subject. We commend it to the attention of all persons interested in cycling, as well as to all members of the medical profession.—*British Medical Journal.*

The Rhode Island Law Regulating the Practice of Medicine.—The text of a law that has recently been enacted in Rhode Island is published in the *Atlantic Medical Weekly* for May 25th, as follows:

"Section 1.—It shall be the duty of each town and city clerk to purchase a book of suitable size, to be known as the Medical Register of each city or town, and to set apart one full page for the registration of each physician; and when any physician shall die or remove from the city or town, said clerk shall make a note of the same at the bottom of the page; and shall on the first day of January in each year transmit to the office of the State Board of Health a duly certified list of the physicians of said city or town registered under this law, together with such other information as is hereinafter required, and perform such other duties as are required by this law; and such clerk shall receive the sum of fifty cents from each physician so registered, which shall be his full compensation for all the duties required under this law.

"Sec. 2.—It shall be unlawful for any person to practise medicine or surgery in any of its branches, within the limits of this State, who has not exhibited and registered in the city or town clerk's office, of the city or town in which he or she resides, his or her authority for so practising medicine as herein prescribed, together with his or her age, address, place of birth, and the school or system of medicine to which he or she proposes to belong, and the person so registering shall subscribe and verify by oath, before such clerk, an affidavit containing such facts, which if willfully false, shall subject the affiant to conviction and punishment for perjury.

"Sec. 3.—Authority to practise medicine under this law shall be a certificate from the State Board of Health, and said board shall upon application issue a certificate to any reputable physician who is practising, or who desires to begin the practice of medicine or surgery in this State who possesses any of the following qualifications:

"1. A diploma from a reputable and legally chartered medical college, indorsed as such by the State Board of Health.

"2. Satisfactory evidence from the person claiming the same that such person was reputably and honorably engaged in the practice of medicine or surgery in this State prior to January first, one thousand eight hundred and ninety-two. Any person not qualified as hereinbefore provided, before practising medicine or surgery in this State shall present himself before said State Board of Health and submit himself to such examination as said board may require. Said board shall examine any person presenting himself and if the examination is satisfactory shall issue its certificate as hereinbefore provided. *Provided*, any person so presenting himself shall pay to the board the sum of ten dollars for each examination, and said fee shall in no case be returned and shall be applied to pay the expenses of the board of health. Applicants may present their credentials by mail or by proxy, and the board shall issue its certificates to such applicants as are entitled thereto as though the applicant were present. All the certificates shall be signed by the president and secretary, and attested by seal of the board, and not more than two dollars shall be charged for any certificate.

"Sec. 4.—Nothing in this law shall be so construed as to authorize any itinerant doctor to register or to practise medicine in any part of this State.

"Sec. 5.—The State Board of Health may refuse to issue the certificate provided for in section three of this article, to any individual guilty of grossly unprofessional conduct of a character likely to deceive or defraud the public, and it may after due notice and hearing, revoke such certificates for like cause. In all cases of refusal or revocation, the applicant may appeal to the appellate division of the Supreme Court, who may affirm or overrule the decision of the board and its decision shall be final.

"Sec. 6.—Nothing in this law shall be so construed as to discriminate against any particular school or system of medicine, or to prohibit women from practising midwifery, or to prohibit gratuitous services in cases of emergency; nor shall this law apply to commissioned surgeons of the United States army, navy, or marine-hospital service, or to legally qualified physicians of another State, called to see a particular case, but who do not open an office or appoint any place in this State where they may meet patients or receive calls.

"Sec. 7.—It shall be the duty of the State Board of Health to bring to the attention of the courts any violations of the provisions of the law within their respective jurisdictions.

"Sec. 8.—Any person living in this State, or any person coming into this State who shall practise medicine or surgery, or attempt to practise medicine or surgery in any of its branches, or who shall perform or attempt to perform any surgical operation for or upon any person within the limits of this State, for reward or compensation, in violation of the provisions of this law, shall, upon conviction thereof, be fined fifty dollars, and upon each and every subsequent conviction shall be fined one hundred dollars and imprisoned thirty days, or either or both, in the discretion of the court; and in no case where any provision of this law has been violated shall the person so violating be entitled to receive compensation for services rendered. To open an office for such purpose or to announce to the public in any other way a readiness to practise medicine or surgery in this State shall be to engage in the practise of medicine within the meaning of this law.

"Sec. 9.—This act shall take effect within sixty days of its passage." It was passed on May 14th.

Injections of Salicylic Acid in the Treatment of Uterine Cancers.—The *Province médicale* for May 18th contains an account of this mode of treatment, which has been employed successfully by M. F. A. Fafiousse in seven cases of uterine cancer. The author used a six-per-cent. solution of the acid in alcohol in the following manner: The patients received previously vaginal antiseptic injections from two to three times a day, one of these injections always preceding those of the salicylic acid. From one to four cubic centimetres of the solution were injected into the vaginal portion of the neck of the uterus in five or six places in the affected region. The vaginal portion was then dried and rubbed with tampons of cotton and dusted with iodoform powder, and the vagina was packed with two or three tampons of cotton saturated with a mixture of glycerin and iodoform. The patients were then put in bed and ordered to remain there during the day without moving; in the evening (or the following morning if there was abundant hæmorrhage) the tampons were withdrawn and a vaginal injection was given.

The first injections, says the writer, are usually followed by a rather profuse hæmorrhage, but the more frequent the injections the less abundant will be the hæmorrhage. The places subjected to many punctures give very little blood. In the majority of cases the injections are painful, but the pain disappears very rapidly, and there are no secondary unfavorable symptoms of any kind. The injections are repeated more or less often, according to the gravity of the case and to the intensity of the patient's suffering.

The results of these injections are the almost complete cessation of metrorrhagia, the disappearance of the leucorrhœa, the diminution of the pain, the amelioration of the general condition, and the arrest of the progress of the disease.

It will be seen then, says the writer, that the injections of salicylic acid are superior to all other means of treatment proposed for inoperable cancer. If it is true that the amelioration is partly due to the more favorable conditions in which the patients find themselves in the hospital, it can not be denied that the restorative action of the salicylic acid was prompt in the seven cases observed by the author.

The Hysterical Heart.—We are indebted to the *Cincinnati Lancet-Clinic* for proof sheets of several important communications read at a meeting of the Obstetrical Society of Cincinnati on December 6, 1894. Among them was the following, by Dr. James T. Whittaker, of Cincinnati:

The heart in hysteria is distinguished by its easy excitability. The increase of action shows itself first after some emotional excitement or after stimulation—tea, coffee, alcohol, etc.—and may amount to a genuine tachycardia, though the frequency rarely reaches above 100 to 130 beats a minute. Retardation is much more rare, though reduction in the frequency of the pulse has been noticed in the so-called sleep attacks—to 45, or even to 40, beats a minute. Real attacks of palpitation are rare, but the patient complains of the feeling of distress, even though the action of the heart is so feeble as to be imperceptible. The pulse is increased after the slightest effort or psychical excitement. Sometimes the mere thought of an effort suffices to excite the pulse. In the rarer cases of retardation the reduction of the force of the heart may lead to syncope. The hysterical sleep attack often shows the condition of apparent death.

Hysterical angina is comparatively rare, though much more frequent than real angina. The condition is recognized by the emotional disturbance which exists during the attack, and which usually evokes an attack, as well as by the absence of organic disease. Patients affected with hysterical angina express great mental distress. They wring the hands, throw themselves about upon the bed or sofa, and succeed in exciting everybody about them. The false angina distinguishes itself also by a different situation of the pains, which do not always begin in the neighborhood of the heart, but sometimes in the extremities, or wander about in irregular ways. The attack is associated also with other evidence of hysteria, as by emotional manifestations, eructations, discharge of abundant clear urine, etc. Sometimes the attacks may be produced by pressure upon tender hysterogenic surfaces.

Vaso-motor disturbances are frequent in hysteria. Alternating flushing and blanching of the face is very common. There are attacks of sudden coldness of the hands and feet, which may shortly afterward become burning hot. There is often a sensation of numbness in the fingers and toes. Discolorations of the hands, more especially of the fingers, have been frequently noticed. Sometimes the hands are white and the ends of the fingers and nails blue. In some rarer cases the joints only are blue, while the rest of the finger is red, so that the appearance is that of blue rings with crimson borders. The spastic contractions may be so intense as to prevent the escape of blood after puncture. It has been noticed that cups withdrew less blood from hysterical than from healthy subjects. Landouzy records cases in which the stroke of the finger nail or of a pencil would bring out a red line, which might extend itself out to a broad red stripe. Sometimes there develops in the middle of the stripe a pale red lashlike elevation, so that curious reliefs can be traced upon the skin, in the condition distinguished as autographism. This condition has been observed also in epilepsy, where it does not, however, persist so long. Hysterical autographism may last for years.

In this connection belongs also the condition of vicarious menstruation, with bleeding from the nose, mouth, ear, stomach, etc. Questions of great difficulty in diagnosis often arise in this connection, as hæmoptysis and hæmatemesis are both of especial frequency in young and anæmic women. The profession at large is more willing to accept a vicarious hæmorrhage from the nose, as epistaxis, as such a common relief of surcharged vessels in congestions about the head. Studies with the changes of blood pressure which occur in connection with menstruation totally independent of the refinement of the so-called Stevenson's wave, account for the escape of blood from dilated and paretic vessels in unsupported places, and while most cases of hæmorrhage from the lungs are really cases of hitherto manifest or latent tuberculosis, there is no doubt that a true hæmoptysis may occur as a result of suppressed menstruation. In this connection comes up also the much-disputed question of stigmatization—that is, the occurrence of spots with subsequent hæmorrhage in situations which correspond to the wounds of Christ. Many of these cases will not bear investigation, and are readily enough discovered to be frauds; but the recent studies with hypnosis and suggestion have done much to dissipate the incredulity and skepticism of former times. Löwenfeld cites the fact that Facachon was able by suggestion to raise vesicles like those of blisters on the skin. Jendrassik and Kraft-Ebing produced eschars, and Bouren, Burot, Berjon, Mabille, and others actually induced hæmorrhages. It is therefore not so surprising that certain hysterical patients who have concentrated their minds continuously upon the wounds of Christ should be able to induce hæmorrhages in these regions, especially when, as was observed in the case of Louise Lateau, by Boëns, the hæmorrhages could be produced mechanically by rubbing with the fingers or with a rough towel.

Hysterical affection of the lungs themselves is much more infrequent, but nervous disturbances in the larynx are among the most common expressions of the disease. Paroxysms of sneezing have been frequently recorded. So-called nervous cough often forms an element of great embarrassment in differential diagnosis. It is usually dry, unattended with expectoration, and has a peculiar bellowing character, distinguished as the "sheep cough." It distinguishes itself by its excessive obstinacy. It often appears suddenly and as suddenly disappears under the influence of emotional excitement, and the worst paroxysms can be controlled for the time by diversion of the mind. Severity of the cough eventually produces pain in the chest, and it may produce hæmoptysis. Certain hysterical patients learn to draw blood from the mouth, gums, etc., sufficient to tinge the sputum. The writer presented to his class two weeks ago an hysterical patient who expectorated for one entire day a considerable amount of blue sputum, which was supposed to be indigo. Instruction was given, unfortunately in the presence of the patient, to have the next fresh sputum examined chemically and microscopically. This instruction put an end to the discharge.

Aphonia is one of the most common manifestations of hysteria, usually in the form of paralysis of the adductors, whereby it is seen with the laryngoscope that the vocal cords are not approximated in phonation, though the glottis is closed in cough. Curious are those cases in which the patients are unable to speak, but can still sing or express pain. Hysterical aphonia usually supervenes suddenly, and sometimes as suddenly disappears. Varied as are the symptoms of hysteria, they all distinguish themselves by persistence in the individual case. Hysterical aphonia does not differ in this regard. Many cases remain aphonic for years. Where the voice is suddenly restored by artificial means, as by electricity, faith cures, miraculous interventions, etc., the cure, as a rule, is not permanent, but returns when the patient gets away from the impression. Löwenfeld relates the case of a patient whose voice had been reduced to a whisper for years. She was induced to repeat the letters of the alphabet, at first in a low tone, and then louder and louder, without notice having been attracted to the voice. When the patient found that she could articulate the letters distinctly, she began to speak. This was not a simulation, but a loss of will power. The patient was convinced that she was not able to speak, and made no effort to speak. The trial showed the ability without any reference to the will.

Martins reported a case of hysterical aphonia in a servant girl, in which the diagnosis was established to a certainty with the laryngoscope. The physician assured the patient that she would be able to utter a loud sound the moment he made pressure upon the larynx. The experiment succeeded, as it always does, perfectly. Under pressure the patient spoke with a loud and distinct voice. As soon as she got home, however, she lost her voice. After repeated experiments of the same kind, he told her she would be able to speak as long as she held her hand at the larynx. This experiment also succeeded perfectly. As soon as she took away her hand she was unable to speak. This condition lasted for weeks, as long as the patient was under observation.

The diagnosis of hysteria as the base upon which symptoms are built is not a matter of the recognition of a disease, but of distinguishing an individual symptom, whether this or that symptom is of hysterical origin or nature. The most essential thing in excluding hysteria is the recognition of the symptoms of organic disease. Most organic diseases have symptoms which hysteria may imitate, but they have also symptoms which hysteria can not imitate. Thus hysteria may imitate emaciation, cough, pain in the chest, and even the expectoration of blood in tuberculosis. But hysteria can not present the fever, the expectoration, the bacilli in the expectoration, and the physical signs of the disease. Then, while hysteria may imitate diseases at the start, it may be easily eliminated in the further course of the malady. Thus hysteria may present at the start the symptoms of an organic disease—myocarditis, valve lesions, etc.—but the conditions are easily separated later (Wagner). Then, certain symptoms belong more definitely to hysteria, such as the paroxysmal attacks, the emotional dramas, sensory hemianæsthesia, certain hyperæsthesias, the globus hystericus, etc. These things mark a hysteria. In all cases it must be remembered that hysteria is a real disease of the cortex of the brain.

The Milk Industry in New Jersey.—An article entitled Dairying in its Relations to the Inspection of Milk, by Professor Albert R. Leeds, constitutes a large portion of the *Report of the Dairy Commissioner of the State of New Jersey for the Year 1894.*

It would be difficult, says Professor Leeds, to overestimate the benefits conferred upon the dairy interests of the State by the work of the milk inspectors under the supervision of the State dairy commissioners since the passage of the first law relating to the adulteration of milk in the year 1880. That law had for its immediate object the prevention of the frauds practised on the consumer, but it has also resulted indirectly in bringing a great benefit to the dairyman by enforcing improvements in the practical conduct of the dairy.

The watering of milk to such an extent as to bring it below the State standard, which was a fraud mostly practised by the dealers, was so common that, at the outset, the inspectors had their hands full conducting prosecutions. Now it is difficult for the inspectors to find a case. The artificial coloring of milk, which was quite a common practice before 1880, has practically been put an end to by the inspections and subsequent chemical examinations. Much partially skimmed milk is still sold in the State as whole milk, and this will continue to be the case until the percentage of fat is regulated by law and fixed at a minimum of 3·5 per cent.

But the standard of twelve per cent. of solids is so low that most whole milk can be watered—and much is—with great precision, so as to just escape the penalties of the law.

Though the present law intended to prevent the keeping and feeding of cattle under disease-producing conditions is too general in its provisions to permit of successful prosecutions for its infringement, says the author, yet by the pressure brought to bear by the inspectors, by the wide publicity and popular indignation consequent upon their reports, and the stirring up of the local boards of health to exercise some supervision and care in the issue of licenses, the worst of the evils complained of have been rectified. They will not entirely disappear until more stringent laws and ordinances have been passed and the keeping of dairies in closely inhabited districts is regulated by a proper system of licenses.

But, leaving these dairies, infamous alike in their cruelty to animals, in their brutalizing influences upon men, and in their disease-spreading effects upon infants and the general community, the author considers the great benefit of inspection to dairying wherever it is carried on with honest effort. In hundreds of cases the location of the wells and the sources of water have been examined, and wherever advisable, the purity and suitableness of the water ascertained by analysis. The drainage, ventilation, and sanitation of the yards, outhouses, and buildings have been looked into. The influence of devoted care and watchful supervision of the individual animal in all points referring to its comfort, cleanliness, skillful feeding, proper breeding, etc., have been made manifest in numberless instances, and the rich rewards of this intelligent personal attention to each individual of the herd been constantly insisted upon. The fixing of the standard at 12 per cent. of solids has done much toward bettering the conditions of milk-production all over the State, but raising the standard to 12·5 per cent., with a minimum 3·5 per cent. of fat, says Professor Leeds, would do a vast deal more. A general improvement in breeding, feeding, and the application of knowledge and skill, now too frequently neglected, would speedily follow.

It is gratifying to learn by Professor Leeds's article of the extent to which the people of the United States are taught how to manage dairies, and that to which the people of France are instructed in the same manner.

Practical investigations in dairying, he says, are carried on at thirty agricultural stations. They include the various processes of butter and cheese making, the losses in these processes and means of eliminating them; the effect of food and of the quality of milk on the composition and yield of dairy products; tests of dairy machinery and apparatus; the utilization of the waste products of the dairy; the management of creameries; and the handling of milk.

In 1825 the Government of France appropriated only 276,000 francs to instruction in agriculture, while at present the amount exceeds four millions. There are three great national schools of practical agriculture and one of the milk industry. The importance of the latter is increased by the very great annual production of milk in France, amounting, according to the most recent statistics, to 1,855,000,000 gallons per annum, and also by the great variety of its cheese and milk products.

The system of public instruction relating to milk is dominated by the national school, which aims to combine experimental and practical work with the largest feasible measure of scientific investigation. This school manufactures on a small scale the different kinds of cheese, butter, sterilized milk, and sugar of milk. It has steam power, refrigerating apparatus, workshops, lecture and museum halls, and an experimental dairy. In the latter about 800 quarts of milk are made each day into butter and cheese.

The course of instruction includes the study of milk, its products, its alterations, the utilization of milk residues, defects and maladies of milk and cheese and the means of curing them, also the study of the conduct of dairies, the care of dairy cattle, their feeding, etc.

The great difficulty in France, as it is in this country and everywhere else, says Professor Leeds, is to get the knowledge into the possession of the children of the farm laborers and the sons of the small farm proprietors. These children at the age of twelve or fourteen years leave the common schools, where they have been taught only such elements as all children should acquire, and without further aid would never acquire the special knowledge alluded to above. To overcome this difficulty the system of agricultural instruction in France has recently been widened by the institution of a new class of farm schools. These take lads at the age when they leave the primary schools and while they still have the habitude of study, but before they are sufficiently grown to be of great service as farm hands—that is, between the ages of thirteen and seventeen. Their time is divided into two equal parts. Half of the day is devoted to farm work, the care of the cattle, getting their rations ready, the study and care of machines, gardening, tree culture, etc. The other half is devoted to lessons, lectures, laboratory studies, and experiments. The pupils are divided into two sections, each of which takes alternately practical work from the noon of one day to the noon of the following day. While one section is at work the other is engaged in study, and *vice versa.*

In the United States the number of schools and colleges in which courses of instruction relative to dairying and agriculture are given is not far from seventy. They have about 1,200 instructors, and a total of not far from 12,000 students, of which a little more than one fourth devote themselves especially to agriculture.

In New Jersey, the Agricultural College, at New Brunswick, gives a four-year course which is mainly devoted, under the direction of Professor Vorhees, to the scientific side of the subject, and includes courses in botany, entomology, biology, etc. It also gives a short course of six weeks, which is sufficient for obtaining a practical knowledge of the methods used in creameries, and includes a few of the most important and simple chemical methods, such as determinations of specific gravity, fat, etc. These courses are similar to those given under Professor Caldwell at Cornell University at Ithaca, N. Y., and every one proposing to carry on dairying as a business should avail himself of the shorter course at least. The former college also sends out lecturers to address the boards of agriculture, and has also established extension courses of twelve lectures of one hour each, weekly. After the lecture an hour is devoted to questions and answers and to explanatory addresses. Even three weeks in a model creamery, arranged for teaching purposes, says Professor Leeds, has proved invaluable to many young men now in charge of creameries in New York State and New Jersey. But as they are backward in leaving their homes, Dr. Collier, the director of the New York station (report for 1889, page 587), advocates the establishment of a dairy school in which there should be given instruction only in those technical branches directly relating to the science and practice of dairying, with at least ten branch sections in different parts of the State.

Professor Leeds gives some interesting data as to the milk of different breeds of cows. He says:

"The Holsteins give the lowest solids, then the Holderness, Ayrshire, Devon, Guernsey, and highest, the Jerseys. The order for fat is Holsteins, the lowest, then Holderness, Ayrshire, Devon, Guernsey, and Jerseys. But in total production of milk, the Holsteins lead, with a daily yield of 22·65 pounds, Ayrshire next, then Guernsey, Jersey, Holderness, and the Devons the lowest, with 12 65 pounds.

"In the course of inspection the question of breed frequently comes up and demands the most serious consideration. In the month of April of this year the milk of one of the largest and best-appointed dairies in this State was condemned by the inspectors in the city of New York, to which place it is exclusively shipped, and the dealers were fined. The dairyman thought some serious blunder must have been committed, or that he had been grievously wronged. He had two samples, representing the whole milk of his dairy, analyzed by responsible chemists in New York. They reported that the milk was certainly much below standard. . . .

"Still more astonished at these results, the proprietor of the dairy brought to me two more samples, representing as nearly as possible similar milk to that examined in New York, with the request that I should check the New York results by independent analyses." The samples were analyzed with substantially the results found in New York.

"In order to satisfy myself by personal inspection," Professor Leeds continues, "I visited this dairy, where every detail of feeding, care, and the history and condition of the cattle was explained in full. I found the water excellent, and so also the arrangements for cooling and handling the milk. The cows were in admirable condition, and their stabling and keeping as they should be. They were mainly thoroughbred registered Holsteins. The analyses above reported are of milk which was stated to be the whole mixed milk of six of these thoroughbred Holsteins in an average condition as to freshness. Their feeding was as follows, April, 1894:

"5 A. M.—Hay.
"6 A. M.—Four quarts mixed feed; milking.
"7.30 A. M.—Hay.
"9 A. M.—Turned into field till—
"4.30 P. M.—Cornstalks and hay.
"5 P. M.—Four quarts feed; milking.
"6 P. M.—Hay.

"The feed was made up of four tons of ground yellow shelled corn, two tons of middlings, and two tons of bran. I examined samples of these separate materials in the laboratory and found them to be of good quality.

"In order to arrive at the nature and extent of the variations in the quantity and composition of these thoroughbred Holstein cattle under the same conditions of feed and keep, but under different conditions as to freshness, I had the total milk of a Holstein, due in the course of about nine weeks, drawn into one pail, and the total milk of another Holstein, which had calved a month previously, drawn into another. The first yielded only a quart and a half. It was stated to be giving about two quarts and a half at the morning milking, or a total of four quarts per diem, and at the time of my visit was the lightest milker in the herd.

"The composition of this one quart and a half of night's milk was:

"SMALLEST MILKER.

	Per cent.
"Fat	5·00
"Albuminoids	3·48
"Milk sugar	4·23
"Ash	0·71
	13·42

"The heaviest milker, the one which had recently calved, yielded nine quarts in the evening, of which a portion was taken and analyzed as below, and eleven quarts in the morning, or twenty quarts in all.

"LARGEST MILKER.

	Per cent.
"Fat	2·80
"Albuminoids	2·70
"Milk sugar	4·16
"Ash	0·58
	10·24

"Taking 12 per cent. as the standard for total solids and 3·5 per cent. for fat, there were, then, in the same herd, fed on he same rations, at one extreme a cow whose milk exceededt the standards of solids and fat by 1·42 per cent. and 1·50 per cent., and at the other extreme a cow whose milk fell below these standards by 1·76 per cent. and 0·70 per cent.

"On obtaining these results, the gentleman owning the dairy changed the make-up of the herd, by the addition of a sufficient number of Jersey cattle to insure the percentage of total solids and fat always going above the State requirements."

The author says he is earnestly desirous that nothing stated in his article should be construed as indicating a belief in the inferiority of Holsteins as milch cattle. On the contrary, he says, they are invaluable. The milk obtained by mixing the product from Holsteins with that of breeds giving richer milk he believes to be better adapted to keep and transport in good condition; to obtain a fair compensation from, and better for the general uses of milk (including that of feeding children), than the richer milk obtained from Jersey cattle alone. The drawback that its larger volume is accompanied by a low percentage of solids is in practice readily overcome by mixing. This also is the right way of solving the commercial and legal aspects of the matter.

The Analgetic Action of Sodium Bicarbonate.—At a recent meeting of the *Société des sciences médicales de Lyon*, an account of which is published in the *Lyon médical* for May 19th, M. Linossier related a number of cases in which he had employed sodium bicarbonate in doses of from eight to thirty grains to allay the pain which occurred a few hours after eating, even when there had been a marked diminution of the excessive hydrochloric-acid secretion. This result had been obtained in patients affected with different diseases—such as biliary lithiasis, gastralgia, neoplasm, and digestive troubles of a mechanical nature. With regard to its action, he said, when this salt was taken into the stomach at a time when digestion was nearly completed it saturated the chyme, excited the muscular coat, and freed the acid which on account of its anæsthetic action might prevent accumulation of gas by relaxing the cardial and pyloric orifices.

The following conclusions, said M. Linossier, might be drawn from these facts: 1. A painful attack occurring when digestion was almost completed, and allayed by the administration of sodium bicarbonate, did not prove that hyperacidity was the cause of the attack. 2. Sodium bicarbonate allayed the painful attacks that occurred periodically after eating, even when there was hyperchlorhydria or diminution of the acidity of the stomach. The analgetic action of the sodium bicarbonate was not lasting; after eight or ten days it ceased to act. Its contraindication was in advanced cases of cancer.

When the sodium bicarbonate failed to act, even in combination with magnesia and bismuth subnitrate, M. Glénard recommended sodium sulphate in doses of from ninety to a hundred and five grains administered in the morning before eating or in the evening. This salt, he said, exercised a remarkable action against the habitual pain in dyspepsia, and thus proved that dyspepsia was not always exclusively gastric, but might depend on the general condition.

The Treatment of Acute Coryza.—The *Revue internationale de médecine et de chirurgie pratiques* for May 25th publishes the following formulas to be used in the treatment of acute coryza: For the purpose of arresting the coryza in the beginning large doses of sodium benzoate (from sixty to ninety grains for children and from ninety to a hundred and fifty grains for adults) are given; painting the mucous membrane with a solution of four grains of cocaine hydrochloride in seventy-five grains of distilled water may also be resorted to. But these means are uncertain in their action and the curative treatment should be employed in the following manner: 1. Inhalation of volatile liquids: Pure carbolic acid, 75 grains; ammonia water, 75 grains; water, 225 grains; alcohol, 150 grains. Several drops of this solution are poured on a linen cloth and the vapor is inhaled. 2. Snuffing powders. The formulas for this purpose are innumerable, but the following are the principal: 1. Cocaine hydrochloride, 2·2 grains; menthol, 4 grains; boric acid, 30 grains; coffee, roasted and ground very fine, 8 grains. 2. Bismuth subnitrate, powdered benzoin, and boric acid, each 90 grains; menthol, 3 grains. 3. Salol, 15 grains; tannin, 1·5 grain; salicylic acid, 3 grains; boric acid, 60 grains. Any of these powders should be used from five to six times during the day, and drawn in vigorously so that it will penetrate deep.

The Index Medicus.—With the publication of the April number the career of this most valuable journal ceased. In a circular announcing the fact the publisher says:

"Owing to the hard times of 1893 the subscription list of this journal was greatly shrunken, and difficulty was found in making collections from subscribers. The deficit in 1893 was a very material sum, which was largely increased in 1894. Announcement was then made to the medical profession that unless the subscription list of the journal could be placed upon a paying basis I must discontinue its publication. Many friends of the *Index Medicus* appealed to me to defer action until they could, by individual and organized effort, arrange for an increased number of subscriptions or for a fund whereby its continuance might be assured. After a period of six months it is found that the prospective deficit this year, assuming that all subscriptions are collectable, will be nearly $2,000. Inasmuch as I can not afford to carry such a burden I have decided as above announced."

Irritation of the Neck of the Bladder Due to Large Doses of Sodium Bicarbonate.—At a recent meeting of the *Société médicale des hôpitaux*, a report of which appears in the *Journal des praticiens* for May 25th, M. Mathieu reported a case of inflammation of the neck of the bladder in a physician who had taken twenty grains of sodium bicarbonate every day for a month, and twenty-five grains a day for another month. During the second month he had shown symptoms of cystitis. On suppressing the use of the drug these symptoms had disappeared in two days, thus proving, said M. Mathieu, that it was not a case of true cystitis, but of irritation of the neck of the bladder. It was noticed that the urine remained acid during the treatment. M. Hayem remarked that he had never seen large doses of sodium bicarbonate cure excessive acidity of the stomach.

The American Medico-psychological Association.—The fifty-first annual meeting was held in Denver, on June 11th, 12th, 13th, and 14th, under the presidency of Dr. Edward Cowles, of Somerville, Mass. The programme included the following papers: The President's Address—The Advancement of Psychiatry, by Dr. Edward Cowles; The Medical Work in the Wards of Hospitals for the Insane, by Dr. P. M. Wise, of Ogdensburgh, N. Y.; The Organization of the Medical Work in the St. Peter State Hospital, by Dr. H. A. Tomlinson, of St. Paul, Minn.; Scientific Dietaries for Hospitals, by Dr. Clarke Gapen, of Kankakee, Ill.; The New York Hospital and Asylum Dietary, by Dr. Charles W. Pilgrim, of Poughkeepsie, N. Y.; Hospital Dietaries, by Dr. J. D. Munson, of Traverse City, Mich.; The Cure of Inebriety by Specific Treatment, by Dr. B. D. Evans, of Morris Plains, N. J.; The Relations of Alcoholic Indulgence to Insanity, by Dr. G. Alder Blumer, of Utica, N. Y., and Dr. H. M. Bannister, of Chicago; The Histological Pathology of Chronic Alcoholism; Part I, The Experimental Study of the Effects of Alcohol on the Cortex of Rabbits, by Dr. H. J. Berkley, of Baltimore; Pseudo-porencephaly with Remarkable Secondary Degenerations—Demonstration of the Cortex and of the Spinal Cord in General Paresis—Demonstration of the Cortex in Senile Dementia, with Peculiar Changes—Demonstration of Senile Tumors in the Cortex of a General Paralytic, by Dr. Adolf Meyer, of Kankakee, Ill.; Fragilitas Ossium, by Dr. H. C. Eyman, of Cleveland; The State Care and State Maintenance for the Dependent Insane, What it has Accomplished in New York, by Dr. Carlos F. MacDonald, of New York; Concealed Delusions, by Dr. B. D. Eastman, of Topeka, Kan.; A Few Canadian Cases in Criminal Courts in which the Plea of Insanity was Presented, by Dr. Daniel Clark, of Toronto; Pelvic Disease and Insanity, by Dr. George H. Rohé, of Baltimore; The Relations of Acute, Active Cerebral Hyperæmia to Insanity, by Dr. Frank P. Norbury, of Jacksonville, Ill.; The Significance of Motor Disturbances in Insanity, by Dr. A. B. Richardson, of Columbus, Ohio; Thyreoid Feeding in Certain Forms of Mental Trouble, by Dr. C. K. Clarke, of Kingston, Ont.; The Use of Thyreoid Extract in Insanity, by Dr. E. N. Brush, of Baltimore; A Memorial of Dr. F. T. Fuller, by Dr. P. L. Murphy, of Morganton, N. C.; A Memorial of Dr. E. E. Duquet, by Dr. T. J. W. Burgess, of Montreal; A Memorial of Dr. George C. Palmer, by Dr. C. B. Burr, of Flint, Mich.; and A Memorial of Dr. M. D. Field, by Dr. W. D. Granger, of Bronxville, N. Y.

The Perennial Value of an Old Diploma.—The question as to what becomes of the old diplomas finds a partial answer in the following advertisement, which appeared a short time ago in a Buffalo daily paper:

"For Sale.—A physician's diploma from one of the best colleges in the country. Address *Medical News* office."

A valued correspondent wrote to the address given and received a reply which we now have. From this we learn that the advertiser is a graduate of nearly twenty years' standing from a reputable medical college in this State, a physician in regular practice in a small town not far from Buffalo, a member of his county society, and presumably regarded as a respectable member of the community in which he lives. How his neighbors are deceived, if this is the opinion they hold of him, may be learned from his own words. He writes:

"The diploma in question was issued by the Castleton, Vt., Medical College to my father, who died a few years ago, is on sheepskin, and is in first-class condition. The name and date you can have changed if you wish, but where a man travels away from home it is only customary to change the date, and that is not always done.

"My price for the diploma is $25.

"Of course it is needless for me to say anything about the ease with which money can be made in the practice of medicine if one goes about it rightly. I would advise any one following the line to travel and advertise, staying from two to three weeks in a place. One can make from $25 to $100 a week. If you should wish to see me personally you can come to —— and return home in a few hours."

And this from a physician, the son of a physician, a member in good standing of the Genesee (N. Y.) County Medical Society! We should advise this man, who respects his father's name as little as he does the honor of his profession, to follow his own counsel and "travel" away from the company of respectable physicians. His letter, which we have in our possession, is at the disposal of the proper authorities who may wish to learn the fate of this particular diploma.—*Medical Record.*

The Southern Illinois Medical Association.—The twenty-first annual meeting was held in Carbondale on May 9th and 10th. Interesting papers were presented on the following subjects: Insanity, Criminal Responsibility as Related to Insanity, Some Common Forms of Mental Disease, The Diagnosis and Treatment of Typhoid Fever, The Treatment of Inebriates, Malignant Sore Throat, The Physiology of Exercise, and Hæmorrhagic Variola. Dr. William R. Mackenzie, of Chester, is the president, and Dr. J. T. McAnally, of Carbondale, the secretary.

The American Academy of Railway Surgeons is to meet in Chicago on September 25th, 26th, and 27th.

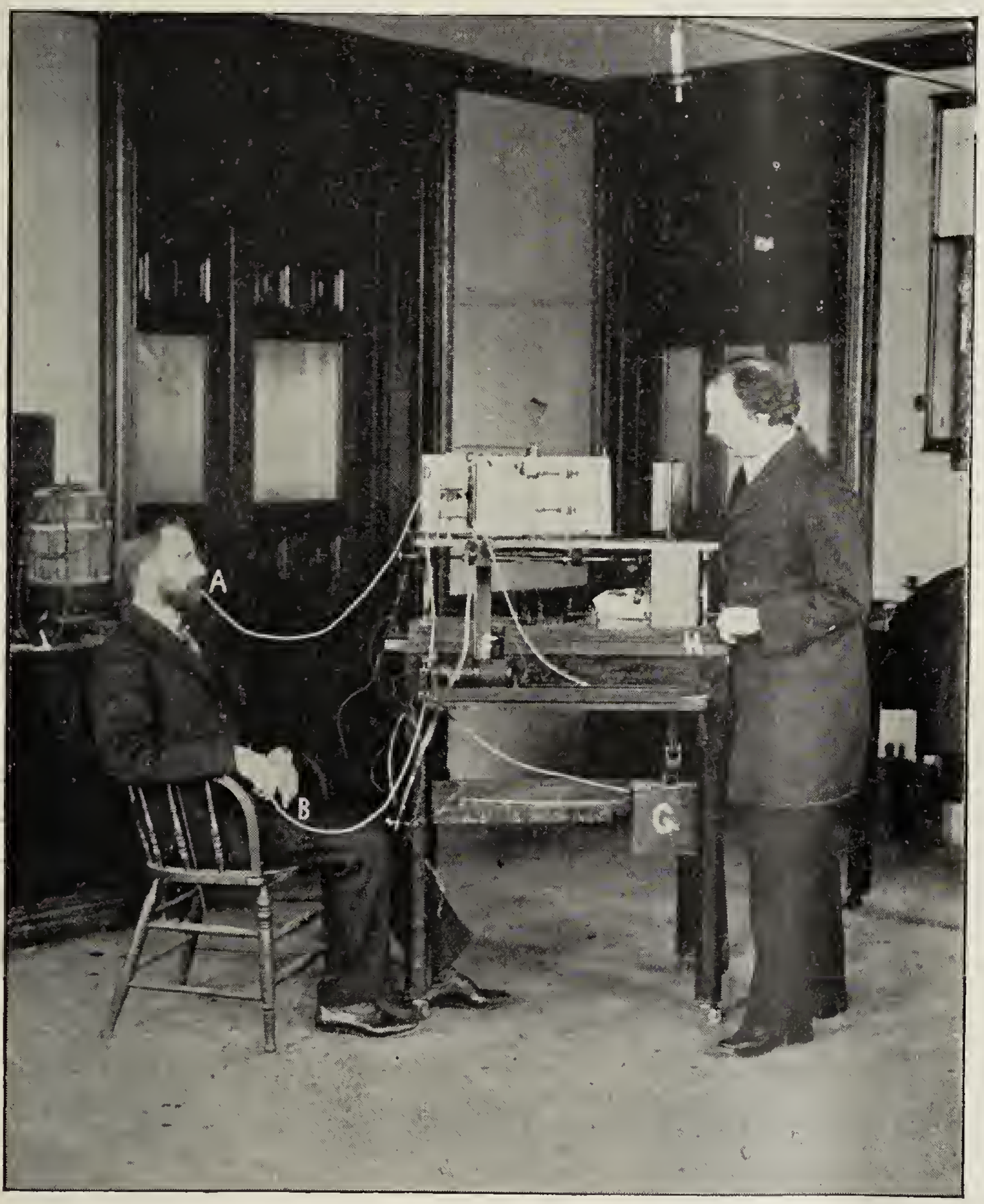
Original Communications.

AN APPARATUS FOR OBTAINING RECORDS OF THE MOTOR FUNCTIONS OF THE HUMAN AND ANIMAL STOMACH ON THE KYMOGRAPHION.

A PRELIMINARY REPORT.

By JOHN C. HEMMETER, Ph. D., M. D., etc.,
BALTIMORE.

There have been three methods suggested up to recent times for determining the motor functions of the stomach. Leube's proposition to estimate the duration of digestion—*i. e.*, to determine after a definite average time of six to seven hours after a large meal, or two hours to two hours and a half after Ewald's test-breakfast, whether solid contents were still to be found in the stomach—is subject to too many physiological variations to permit of any reliable deductions. Ewald has proposed the use of salol, which according to Nencki is not changed by acids, but is converted by the alkaline juices of the duodenum (pancreatic and bile) into salicylic acid and phenol. Ewald and Sievers found in fact that salol was not decomposed by acids, but by relatively feeble alkaline fluids. Hence the appearance of salicyluric acid, the product of the decomposition of the salicylic acid in the urine, will indicate that the salol has actually passed out of the stomach; naturally, salicyluric acid will appear in the urine forty, at most seventy-five, minutes after taking one gramme of salol. Hence delay in its appearance will indicate a retardation in the passage of food into the intestines.

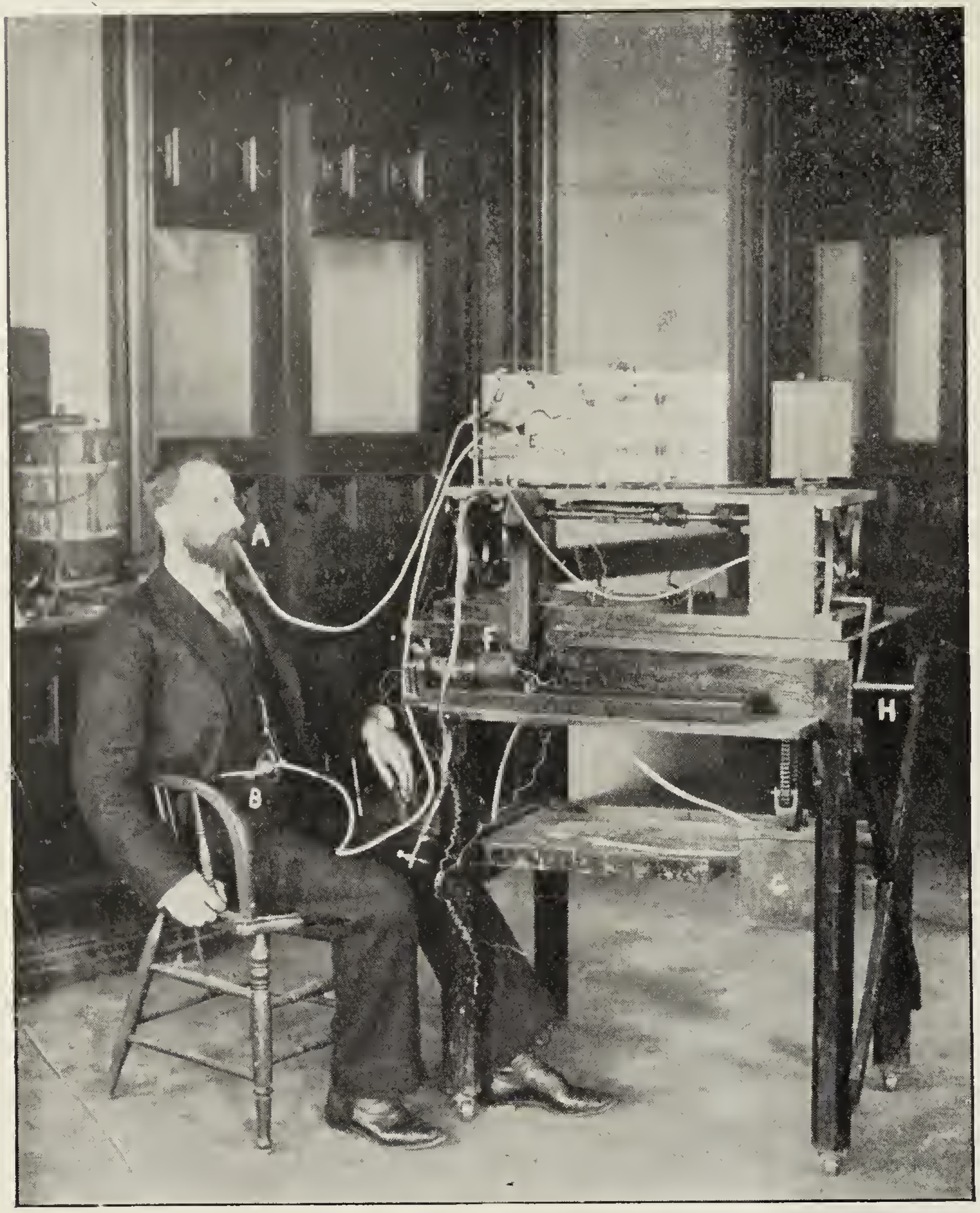


Subject and experimenter working at kymograph.

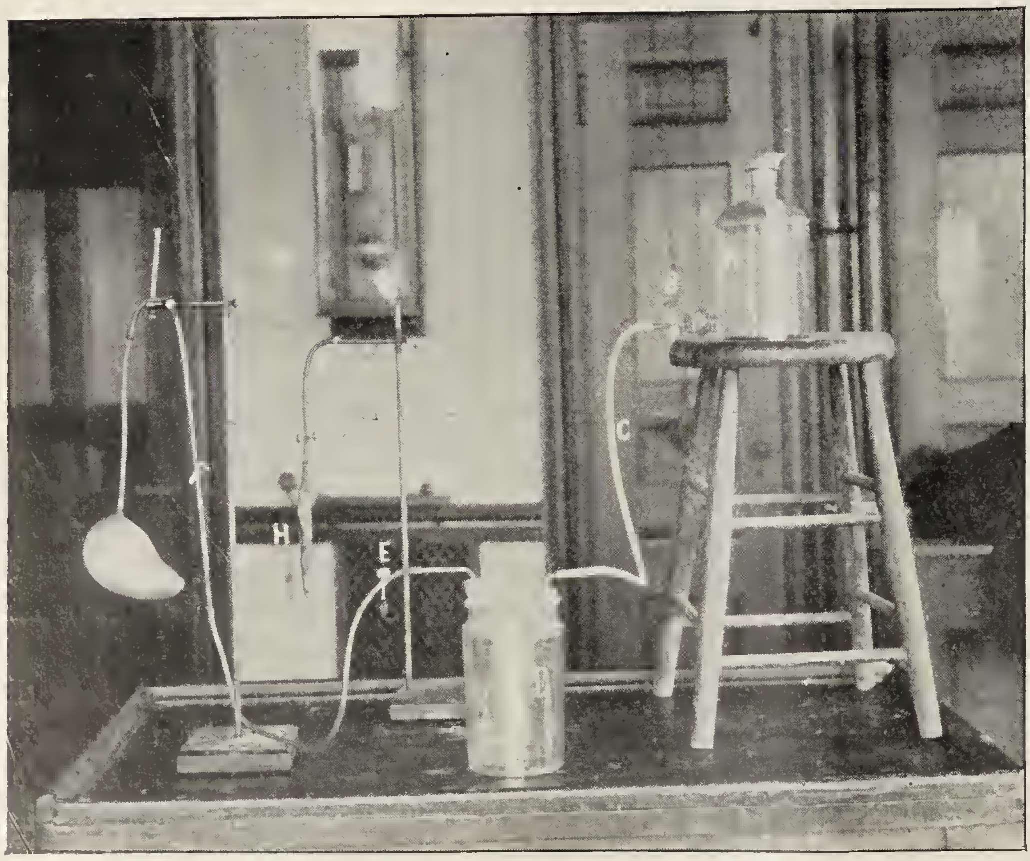
Salicyluric acid is recognized in the urine by the violet color produced on the addition of neutral ferric chloride solution. Unfortunately, in this method the time of the decomposition of the salol depends on the occurrence of the neutral or alkaline reaction of the intestine. Even under normal conditions this may vary, since it depends on the changeable reaction of the chyme and the quantity of bile and pancreatic juice which reaches the intestine.

Klemperer has proposed another method for determining the motor activity of the stomach. He pours one hundred cubic centimetres of pure olive oil into the empty stomach, which has previously been washed out if necessary. Two hours later the stomach is aspirated, and whatever oil is left is removed as thoroughly as possible. The difference between the original quantity of oil and that aspirated is used by him as an indication of the motor function of the stomach. Klemperer admits that his method is complicated and objectionable to patients. This, on the face of it, is a valid objection; but when one considers the nature and complexity of the problem to be solved it is no very serious objection, because it is very evident that no method can ever be suggested for determining the motor activity of the stomach which is not complicated and not objectionable to the patient. The entire technique of treating stomach diseases scientifically is objectionable to some patients for the same reasons. These objections, however, will always be overcome by patience and endurance; they are not produced by any real fault in the method, but by hypersensitiveness of the subject to be treated. A method should not be objectionable because of its complexity when from the intricate nature of the problem to be solved complexity is unavoidable; the only test of its usefulness should be its harmlessness and the accuracy of its results.

Dr. Max Einhorn, of New York, has described, in the *New York Medical Journal* for September 15, 1894, an instrument which records the gastric movements by dots on a narrow piece of paper. No distinction can be made between respiratory and real movements of the stomach by the ingenious piece of apparatus which this talented observer has devised. Nevertheless, Dr. Einhorn's apparatus marks an epoch in the history of the study of the motor function of the stomach; it is the first attempt to obtain a direct record of stomach movements by mechanical means.



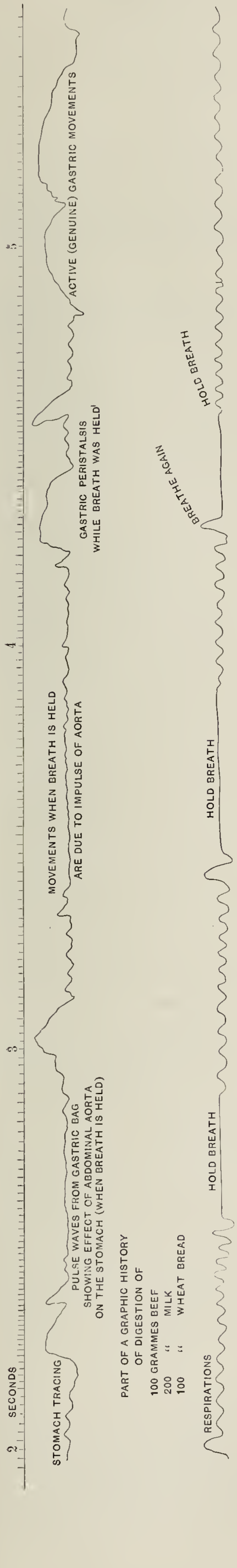
Patient with intragastric bag within stomach and pneumograph in place, both connected with kymograph.



The apparatus, not including kymograph. G, intragastric bag distended; F, the œsophageal tube attached to it; H, intragastric bag collapsed in the shape it is introduced; A, pressure bottle elevated and filled with water and graduated; B, stopcock; D, lower graduated bottle, empty at first. The bag is distended after it is swallowed by connecting it at E with D; the stopcock B is turned on, and the water then runs from A to D, displacing the air in D and forcing it into the bag. Both bottles being graduated, the amount of air in G is always known and can be utilized as an indication of the gastric capacity.

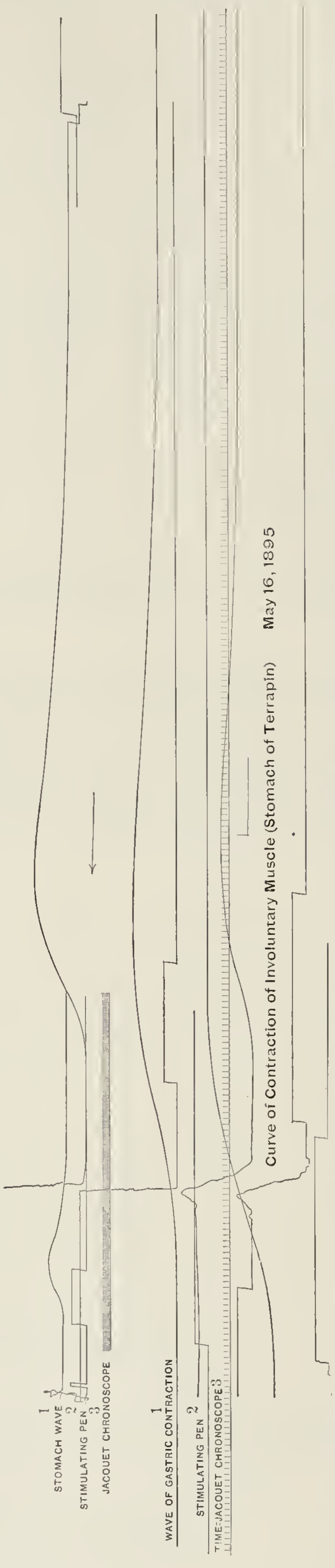
The method herein described has been used in a series of experiments on men and animals at the biological laboratory of the Johns Hopkins University. The essential part of the apparatus is a deglutable, elastic, stomach-shaped bag of very thin rubber and attached to an œsophageal tube. The stomach-shaped pouch has the shape of the stomach only when it is blown up; it does not occupy much space when it is collapsed, and can be introduced without difficulty into the stomach of patients. The œsophageal tube can be very small—not quite half the size of the ordinary tubes used in lavage.

When the bag has reached the stomach, which can be determined by a mark previously made on the tube, it is attached to a double-necked Woulfe flask at E, Fig. 1. The two bottles A and D are used to distend the bag within the stomach. A is elevated above D and full of water, while D is empty. When the stopcock B is opened, water runs from A into D, displaces air in the latter, and forces it into the bag inside of the stomach. When the bag G is in this manner distended, the œsophageal tube is closed by the pinchcock E. Now the tube is detached from the Woulfe bottle and connected either with a water manometer or tambour at D, Fig. 2, on the Ludwig kymograph. The slightest contraction of the involuntary fibre of the gastric muscle layer will compress the very elastic intragastric bag and distend the tambour, to which a glass-bulb ink pen is attached, recording the gastric peristalsis as the clockwork moves the paper along. This is the first successful attempt to record graphically the motions of the human stomach on the kymograph. On the upper margin of the kymographion paper, a record pen, connected with a chronometer, indicates seconds on the record by small dots at C, Fig. 2, so that it is possible to determine the time of occurrence and duration of the gastric peristalsis. As the stomach moves passively with every inspiration and expiration, a pneumograph is tied around the patient's waist, recording every respiratory movement on the kymograph. It will be seen on the tracings that many movements of the pen connected with the intragastric bag are passive and caused by the acts of respiration. But there are other very high and long excursions of the gastric pen which are independent of movements of the pneumograph pen, or occur when respiration is suspended for a short while; these are the muscular contractions proper of the stomach. They have been stud-



ied on men and animals. In empty and full stomachs it is possible by this method to study the effect of drugs and electricity on the motor function of the stomach. The Willms Surgical Instrument Company has, according to my design, manufactured an intragastric bag which terminates in an electrode, the wire running up through the œsophageal tube to the apparatus, while the tube itself runs to the tambour. Either pole can be made to enter the stomach by the current reverser, while the other pole is placed at the back of the neck or any other desirable place.

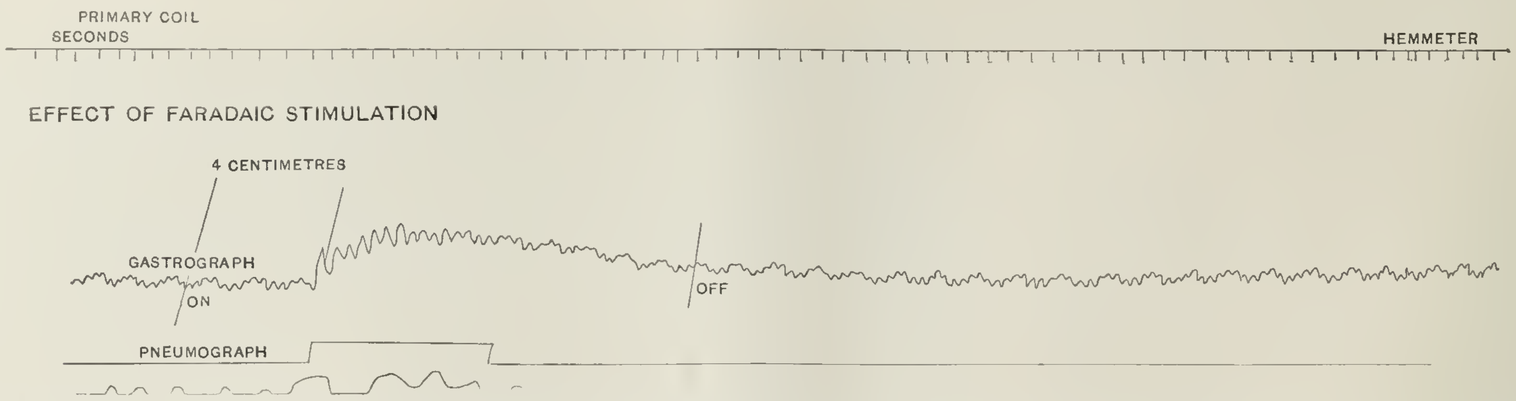
It will be easily understood that the apparatus described on Fig. 1 gives an excellent method for measuring the capacity of the stomach, as we can determine exactly how much air is displaced from D, and, noting the quantity which was in the stomach when the patient said the stomach was full, we can permit the bag to be emptied by escape of air, remove the same, and fill it with the same quantity of air outside of the organ as we observed it took to fill the stomach. As this air is in the bag under pressure, the amount of air in the bag does not indicate the exact capacity; to arrive at this, the bag in this way distended must be immersed in a graduated basin full of water to determine the number of cubic centimetres of water it displaces when it is blown up to the size it occupied in the stomach. The stomach capacity may also be arrived at by allowing the air in the bag, when the stomach is distended as far as possible, to escape into a spirometer.



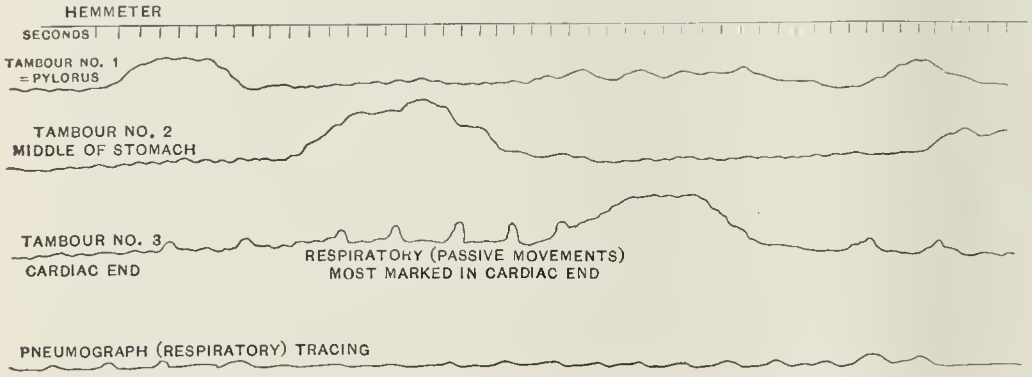
Curve of contraction of stomach of terrapin, in which slow stimulations—*i. e.*, twenty per second—are more effective than rapid stimulation. The number of stimulations can be so increased per second that the muscle will not contract at all.

The apparatus is thus also available for the diagnosis of gastrectasia and cicatricial contraction of the stomach. In making studies on the kymograph on the gastric motility, only such patients are taken as have become accustomed to the stomach tube, as the nausea and vomiting first attending the initial introduction of the tube make an exact record impossible. Two gentlemen upon whom I experimented were healthy persons, who became so accustomed to the intragastric bag that they could read a paper while the work went on. This is only a preliminary report, with no pretense to completeness; a more detailed account of the effects of heat, cold, electricity, acids, alkalies, the effects of various kinds of food, and a study of various pathological conditions will, it is hoped, be reported as the work progresses. Above all, I shall endeavor to publish an account of the normal movements, concerning which I have been convinced there are some important new facts to be learned. These normal movements I have studied in men by this apparatus and in animals by placing them in a glass case filled with steam vapor. The abdomen was opened, all bleeding was stopped, thermometers were placed to indicate the temperature of the case, and the gastric peristalsis was studied through the glass. Ether and chloroform and even morphine inhibit the gastric motility, and upon advice of Professor W. H. Howell the animals were rendered insensible by brain compression under a short ether anæsthesia, which was later on suspended. As soon as the ether effects wear off the gastric peristalsis is most marked.

On Fig. 4 an intragastric bag is depicted, the object of which is to record the direc-

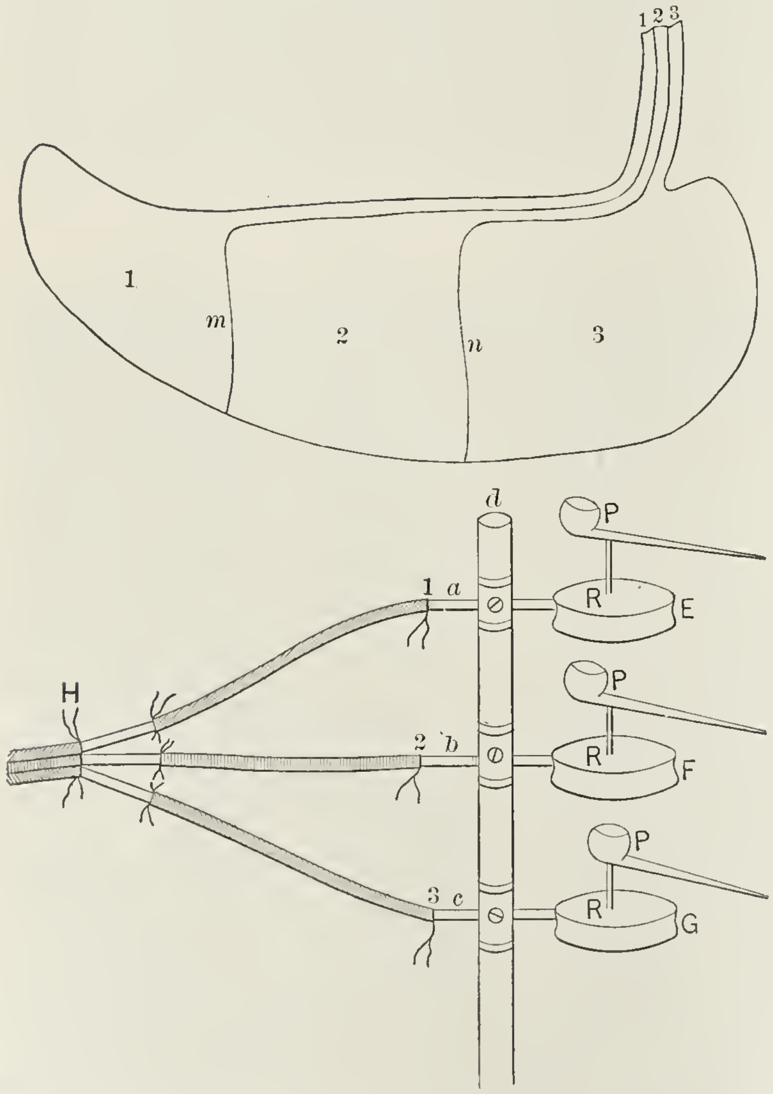


The slowing of the cardiac impulse, as shown in the gastric record, is not a genuine cardiac inhibition, but only an apparent one, due to the fact that the stomach draws away from the diaphragm and aorta during violent contractions and does not receive every impulse; the radial pulse during this period was undisturbed and regular. Distance of secondary from primary coil, four centimetres on the sliding apparatus.



Hemmeter's triple intragastric bag. Kymographic record of pyloric (No. 1), middle portion (No. 2), and cardiac end of stomach (No. 3), in successive peristalsis.

tion and origin of the gastric peristaltic waves. The bag is divided into three portions by partitions, and each portion records separately by a tambour on the kymograph.



Intragastric tissue rubber bag, with three distinct parts and three separate outlets for recording the origin and direction of gastric persistalsis. Outside of the mouth the triple tube separates into its three component tubes, each being connected with a separate tambour and glass ink pen, writing the gastric contractions and relaxations on the kymograph. Part of bag No. 1 records the contractions of the pylorus; portion of No. 2, the middle of stomach, and part No. 3, of the cardiac end.

Naturally, the momentum of the contraction of one bag will be imparted to the other two, but, as the experiment shows on the tracing accompanying the table, this is not so marked as to show on the kymograph. Each bag as a rule records separately, and conjoint action of the three pens, while it does occur, is the exception. The tambours E, F, and G, and their entrance tubes, *a*, *b*, *c*, are made of brass, but the part R is of rubber, like a drumhead, and vibrates continually under the effect of the gastric peristalsis as transmitted from the bag to the tambours. This bag is swallowed in a collapsed condition and blown up afterward within the stomach. It is not free from objections for the reasons mentioned, but for the purpose of recording the origin of the contractions in the human stomach it is the most expedient thing which suggested itself. This apparatus shows that in the human being also the great majority if not all of the peristaltic waves start at the pyloric end. The record of the contraction of the terrapin's stomach under an induced current, which I am fortunate enough to be able to insert by the kind permission of Dr. George P. Dreyer, shows the latent period of contraction by the record of a Jacquet chronoscope. I can confirm Dr. Dreyer's observation that it takes strong currents to cause the stomachs of mammals and amphibia, as well as human beings, to contract; no contraction in human beings can be produced before the distance of the secondary coil from the primary is fifteen centimetres, using one element; and that involuntary muscle contracts more readily when the number of stimulations (vibrations) does not exceed twenty per second.

The conviction has been forced upon me that the currents ordinarily used in gastric electrotherapy are too weak, and that the faradaic currents are used with an excessively large number of stimulations to the second. It should not be overlooked that the number of stimulations to the second coming from the vibrator may be so far increased that both voluntary and involuntary muscular fibre will not contract at all under its influence.

No. 1734 Linden Avenue.

Changes of Address.—Dr. M. L. Carr, to No. 112 West Sixty-fourth Street, New York; Dr. Walter F. Chappell and Dr. Andrew H. Smith, to No. 15 East Thirty-eighth Street, New York.

A CASE OF SUCCESSFUL
OPERATION FOR BRAIN TUMOR.

By CHARLES L. DANA, M.D.,

and J. R. CONWAY, M.D.

History, by Dr. Dana.

The following case was so satisfactory from a therapeutic point of view and adds so distinctly to the achievements of cerebral surgery that no excuse is needed for placing it on record. Aside from its importance in giving renewed confidence to the surgeon and neurologist, it has much clinical interest on account of its bearing on the question of the sensory functions of the motor area of the brain cortex.

History of the Case.—*Jacksonian Epilepsy; Paralysis of Left Arm, with Sensory Troubles; Headache; Optic Neuritis; Operation, with Improvement of Symptoms.*—Charles T., aged sixteen years, was born in Germany. The family history is negative. There is no history of any specific infection or of alcoholic habits. About three years before admission the patient had received a blow on the left side of the head, just over the squamous suture. He was somewhat stunned, but speedily recovered and apparently suffered from no after-effects. About six months later he began to suffer from headache and epileptic convulsions, which latter, so far as I can learn, were general in character. He had two or three every month for a year. At the end of this time—that is, about a year and a half altogether—he noticed that the attacks began with sensations of tingling and numbness in the left fingers, and that the convulsive movements affected the fingers and arm first. They were followed by unilateral convulsions and unconsciousness. These attacks increased in frequency until he had sometimes one or two a week. About a year ago he noticed that his left arm was becoming weaker and smaller. Five or six months before admission he again suffered from severe pains in the head, and occasionally had attacks of vomiting. He had no trouble with the legs or with the face. The symptoms increased, and he began to suffer from pains in the left arm as well as weakness and stiffness, and sensation sof numbness and pricking. When the convulsive attacks came on, he experienced intense pain in the arm before unconsciousness set in. He was first seen by me, May 29, 1894, at my clinic at the Post-graduate School, and at about that time he had had four consecutive fits in one day.

Physical Examination.—The boy seemed to possess a fair degree of intelligence. His gait was normal, and he apparently had no weakness or disturbance of the leg. There was a slight amount of weakness of the muscles of the lower half of the face on the left side. The left arm was very weak, so that he could raise it but a little way from the side, and the grasp of the hand was only about ten on the dynamometer, the normal being forty-five. Detailed examination of the left arm showed weakness of the deltoid, and of the flexors and extensors of the forearm. Supination was nearly impossible, pronation moderately good. Flexion of the fingers and wrist very weak; unable to grasp a pencil or hold a tumbler. There was total paralysis of the adductors and abductors of the fingers and of the extensors of the wrist and fingers. Circumference of the left forearm, three inches below the olecranon process, eight inches; right forearm, nine inches. There was exaggeration of the tendon reflexes of the arm, and every now and then clonic movements of the flexors and extensors of the fingers and also of the flexors of the forearm took place. Slight irritation of the finger-tips would cause a sharp, painful contraction of the forearm and hand. The left arm was colder and redder than the right.

Sensation.—The sense of contact over the left hand and arm is slightly diminished; he is unable to locate the point of contact within two or three inches. Two points, two centimetres apart, on the finger-tips are felt as one. Localization by placing the fingers of the normal hand on a definite point on the paralyzed hand is defective; but he localizes better an object on the right hand with his left finger than on the left hand with his right finger. Pain sense, if anything, slightly over-acute; a pinch or a prick of the left hand causes more pain than on the corresponding part on the right hand. He suffers from neuralgic pains in the left arm. Temperature sense normal to both heat and cold. Muscular sense is defective; he does not recognize the position of the fingers or hand or arm well, and he does not recognize weights well. The most striking defects, therefore, are the impaired muscular sense and the impaired localization sense, together with a little hyperalgesia and excessive reflex excitability. The left leg shows slight increase in the knee-jerk, but no ankle-clonus and no particular motor weakness, nor is there any sensory trouble. There is very little motor trouble in the face and no sensory disturbance. The right half of the body is normal.

The patient complains a great deal of intense frontal headaches, which, he says, are worse at night and in the early morning. Examination of the eye shows a well-marked optic neuritis on both sides; the visual acuity, however, is still good, though there is some limitation of the visual field. Hearing, smell, and taste are normal. The bodily functions, aside from those described, are normal; the appetite is good; the bowels are regular.

The patient, as may be seen, presented in a typical manner the general symptoms of a brain tumor and also well-marked localizing symptoms. Owing to the fact that the left arm was paralyzed and that sensory disturbances were present here, and that the face and leg were but little affected, it was easy to say that the lesion was affecting the arm centre of the right cerebral hemisphere. The fact that the pain and paræsthesia and initial convulsive movements began in the fingers indicated that the finger and hand centres were more particularly involved. The diagnosis of a tumor involving the hand and arm centres was therefore made. Owing to the fact that the boy had had convulsions and headache before any localized symptoms appeared, it seemed possible that the tumor might be anterior to the motor centres and might be invading them secondarily. The age of the boy, the absence of syphilis and of any signs of tuberculosis, together with the rather rapid growth, led me to think that the tumor was probably a glioma or gliosarcoma. The case was turned over to Dr. Conway, assistant surgeon to the Fourth Medical Division at Bellevue Hospital, who kindly consented to operate. The patient was also seen by Dr. Herman M. Biggs, who confirmed the local diagnosis and suggested the probability that it was a glio-sarcomatous tumor. Dr. Conway operated on the patient June 4th. The details of the operation I do not purpose to give here, but leave them to be described by him.

The Operation, by Dr. Conway.

On the day previous to the operation the scalp was thoroughly shaved and cleansed, the bowels were purged, and the patient was carefully nourished. At this time Dr. Dana mapped out the hand and arm centres, leaving an indelible mark with the silver-nitrate pencil.

Two hours before beginning proceedings five minims each of tincture of strophanthus and tincture of digitalis with a fortieth of a grain of strychnine sulphate were administered, because the pulse was somewhat feeble and the operation likely to be severe and prolonged.

June 4th.—The patient being etherized and the usual antiseptic precautions taken, a horseshoe-shaped incision was made, including an area about three inches in diameter, the base of the semicircle being below upon the right side of the head, and the centre of the flap corresponding to the motor area previously marked out. The scalpel was carried firmly to the bone, incising the periosteum at the same time, the latter being turned down adherent to the scalp, thus exposing the bone at once. A conical trephine three quarters of an inch in diameter was applied to the skull over the arm centre, and after a great deal of difficulty, because of the extreme thickness of the bone, an opening was made. In removing the button of bone it was found that the dura was adherent, causing it to be slightly torn. The trephine was again applied above and a little posteriorly to the first opening and all the bone between and around was cut away with the rongeur forceps until the aperture in the skull measured nearly two inches in diameter. This was done because it was evident from the appearance of the dura that the tumor was extensive and would require a large opening. A T-shaped incision was then made in the dura over the centre of the tumor, which was found closely adherent to it, the pia and brain tissue being somewhat torn in separating the two from the dura. The tumor, which was found to be a flat, tough, and fibrous mass in appearance, about an eighth of an inch in thickness, was then separated from the pia and brain substance by means of the handle of a silver teaspoon. The new growth was so incorporated with the gray matter of the brain substance at about the centre of the first trephine opening that a small portion of brain substance was removed with it, and for a short space around this centre small deposits of the same substance, in a number of minute spots, were noticed, but not interfered with.

By exploration anteriorly, it was found that the growth extended probably some distance beyond the opening in the bone already made, but, as the portion already removed was two and a quarter by two inches and the patient was rapidly growing weak, it was thought advisable to allow any remnant to remain and be removed by a later operation.

All portions of the main growth posteriorly, above, and below having been thoroughly taken away, the edges of the incised dura were brought together with catgut and the scalp was stitched with interrupted silk sutures, drainage being provided for by means of very small rubber tubes.

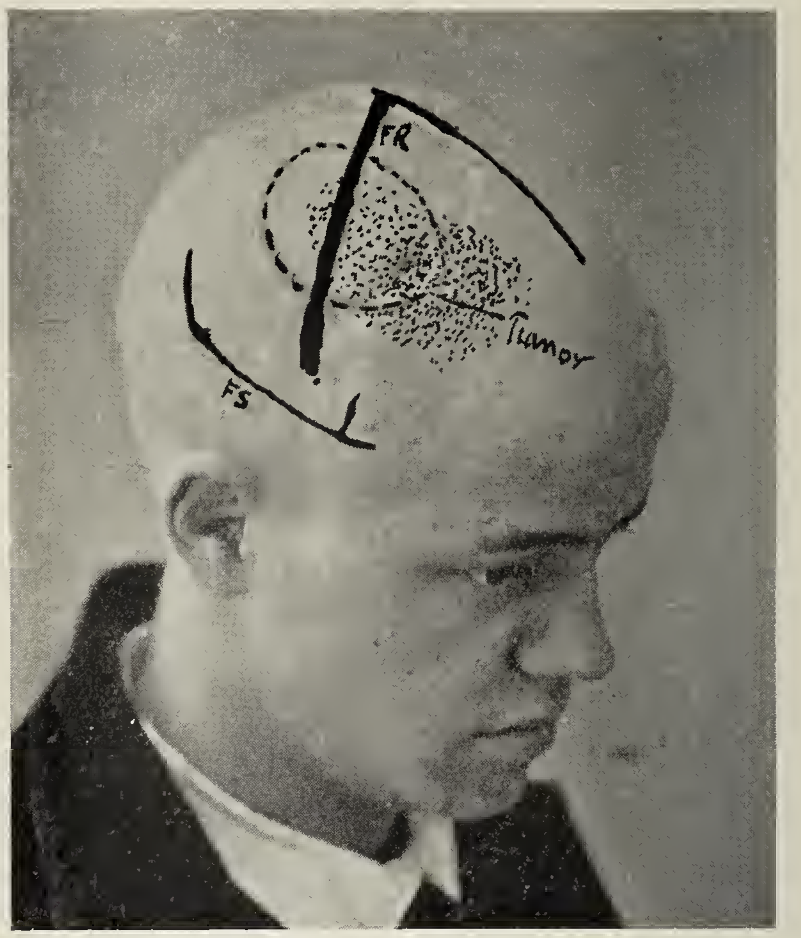
It was immediately found necessary to stimulate him freely with the customary heart tonics, used hypodermically, until the heart became safely strong.

Three hours after the operation he had a general convulsion, and during the same night three more followed, but none of them were of a very severe type.

The wound remained aseptic and rapidly healed, all sutures and drainage-tubes having been removed within five days. The temperature was elevated two degrees during the first week, but gradually became normal.

History continued, by Dr. Dana.

The arm and hand centres were mapped out upon the shaved scalp by myself, the skull was trephined, the dura opened, and a tumor found immediately under the point of the first trephine opening. The opening was enlarged extensively, and it was found that the growth lay directly beneath the dura mater, from which it had apparently started, and extended forward a considerable distance, being bounded anteriorly by about the middle of the frontal lobe, posteriorly it reached as far as the posterior edge of the first central convolution, and below it extended down to near the lower edge of the central convolutions. The tumor was in its posterior part, where it covered the central convolutions, easily stripped off from the pia mater; but beneath this area—that is to say, directly over the middle portion of the central convolutions—the cortex was seen to be congested, dark, and infiltrated with grayish spots. While not entirely destroyed, its functional activity was evidently impaired, for it did not respond to strong irritation of the faradaic current applied directly upon the convolution. On stripping the tumor up anteriorly it was found that about the base of the second frontal convolution the tumor had become attached to and infiltrated into the cortex so that this was torn in removing parts of it. As much as possible of the tumor was removed, but a considerable portion of the anterior part had to be left, although the opening in the skull was enlarged as much as was thought safe. The patient made a good recovery, the wound healing by first intention; but in the first day he had two convulsions and during the following fortnight he suffered intensely from headaches, pain in the arm, and he was at times actively delirious. The symptoms gradually abated, and by June 27th his mind was clear, his head was free from pain, and he felt thoroughly convalescent.



The situation of the trephine opening and of the tumor (from a photograph taken a year after the operation). The dotted line indicates the outline of the trephined area; the dotted area indicates the position of the tumor.

Physical examination at that time showed the following conditions: The paresis of the face was unchanged and the condition of the leg seemed the same. The left arm could be moved more freely; the patient raised it from his side, flexed and extended it with greater readiness; there was less rigidity, and the reflex excitability and tendency to twitching had entirely gone. There was still considerable weakness in extension and flexion, and pronation was very feeble. The fingers were held most of the time in extension, but they could be flexed feebly; they could also be slightly adducted and abducted, so that on the whole the movements of the arm were better than before the operation.

Sensation.—The pain in the arm had disappeared, and there was hardly any of the hyperalgesia which he had before experienced. Still hyperalgesia did exist, as shown by simultaneous pricks of the two sides or by pinches of the two forefingers, the boy always saying that he felt more pain when the skin of the left hand was pinched than when that of the right was so treated.

Light contact by touch of the finger or the head of a pin was appreciated normally, or almost so. There was a slight delay in contact sensation, however. Localization was slightly more defective than previous to the operation. A point on the thumb would be felt on the forefinger; two points, two centimetres apart, would be felt as one. Motor touch, so called, as shown by his attempts to describe an object placed in his hand, was defective, though not much so; he thought that a quarter of a dollar was a half dollar, and was rather doubtful of the nature of the coin altogether. Temperature sense was normal.

The muscular sense, as shown by appreciation of movements of the fingers and position of the fingers, hand, and forearm, was quite defective. The fingers when held out straight were said to be flexed, and attempts to place the right arm in the same position as that in which the left was placed were unsuccessful. Appreciation of weights was also defective, and attempts to use the hand in any way were extremely awkward, though this was largely due to the stiffness and weakness of the limb.

April 2, 1895 (eleven months after the operation).—The patient went until July, 1894, without further convulsions. Since that time he has had about one convulsion a month. The seizures, however, are now unilateral only, and not accompanied with loss of consciousness, as was the case before the operation. They are preceded by an aura of tingling and slight pain beginning in the fingers and running up the arm. The hand and arm go through clonic movements, the face and leg twitch slightly, the eyes turn to the left, the leg is very slightly moved.

The paralysis is now less than before the operation. The boy can raise the arm straight above the head, flex and extend it, flex the fingers, especially in the ulnar distribution, and extend the fingers slightly, but not the wrist. He can pronate but not supinate. The fingers are kept in rather rigid flexion, and they are straightened with some difficulty. There is clonus on forced extension of the arm and hand. The left leg is a trifle weak, and drags a little on walking; the knee-jerk on the left side is exaggerated. The left side of the face shows slight paresis.

There is no pain or tenderness now in the affected side, nor is there any sensory disturbance in the face or leg.

The hand shows defective localizing sense. When a point on the finger is touched, he in the majority of cases refers it to the wrong finger, and he can not touch a given point on the affected hand with the fingers of the normal hand.

The sense of position of the fingers and hand, the tactile, pain, and temperature senses are normal or nearly so. He has no headaches; his eyesight is good, and there are only slight traces of the optic neuritis. His general health is good.

The piece of tumor removed was found to be from a spindle-celled sarcoma.

The Death of M. Verneuil, the distinguished French surgeon, is announced as having taken place on Wednesday, the 12th inst.

RESECTION OF THE FEMUR FOR DEFORMED UNION OF FRACTURE.

By JUAN JOSÉ MARTINEZ, M. D.,

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I TAKE the liberty of calling the attention of the profession to this case not merely with the view of bringing it to their notice, but because of some observations connected with it which may result in important consequences if investigations are carried further by expert men.

The case is that of R. V., aged twenty seven years, of Costa Rica, who received a gunshot wound in the upper part of the thigh, fracturing the femur at the junction of its upper with the middle third, at the battle of Limon, in Masaya, during the Nicaraguan revolution of 1893.

I was chief surgeon of the expeditionary force in that city, and as the patient came to me I applied a provisional dressing and splint, and sent him next day to the General Military Hospital in Granada. Owing to the great number of wounded and the limited number of good surgeons, this patient happened to fall into the hands of an inexpert one, who left him in the condition represented by Fig. 1. Eighteen months afterward the poor man consulted me, and I advised an operation.

An incision four inches and a half in length was made over the most prominent part, and this discovered a large and very rough mass formed of superabundant callus, soft at some points and very hard at others. The periosteum was retracted, a piece of bone as large as half of a large apple was chiseled out, and a wedge-shaped piece of bone removed; then the femur was fractured, bringing it to the proper line. The periosteum was replaced, and the wound packed with iodoform gauze. Plenty of hot water was the only wash used in the operation; the instruments also were put into boiling water.

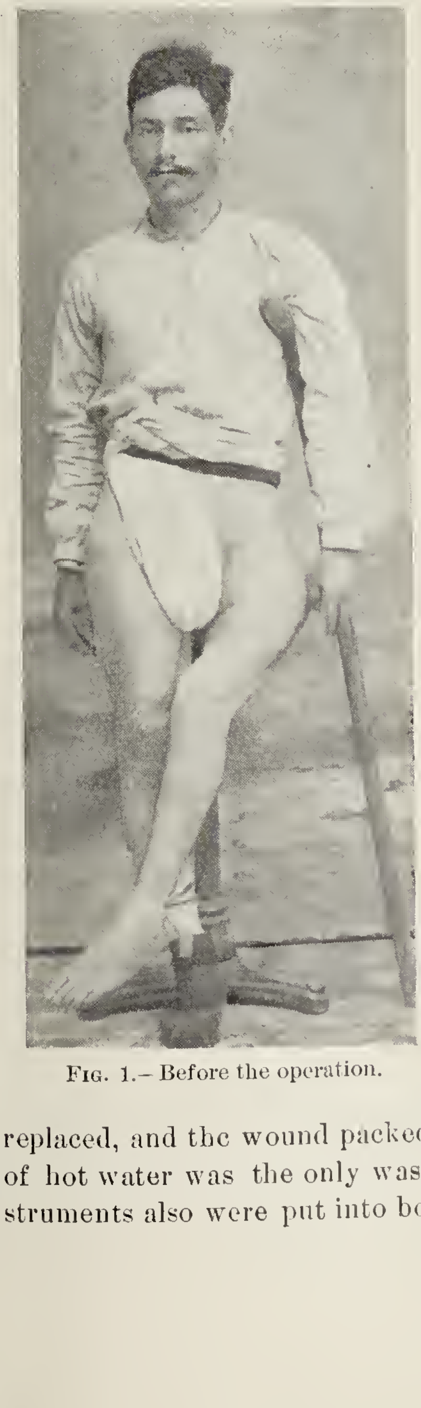


FIG. 1.—Before the operation.

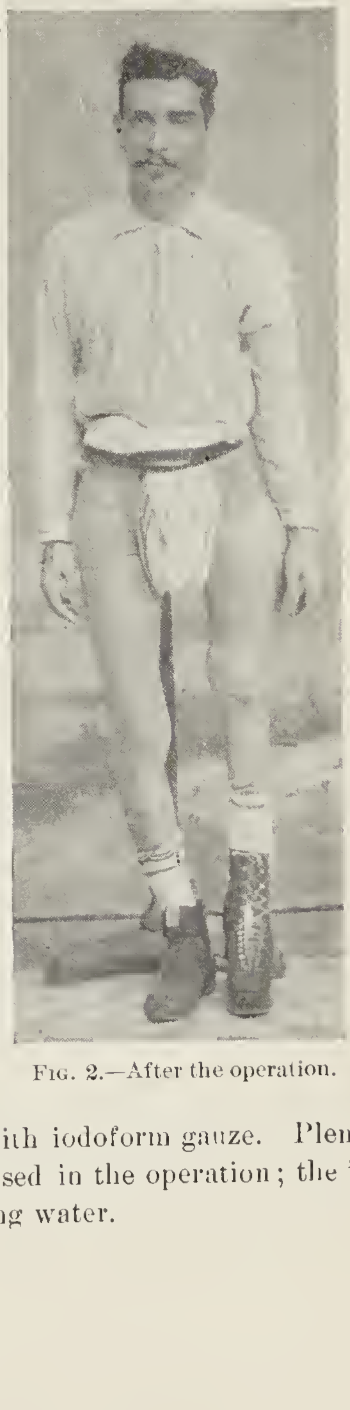


FIG. 2.—After the operation.

I then applied a back and two side splints, the outer one with a window, to allow of dressing the wound; also applied extension and counter-extension. The splints were covered with rubber cloth to prevent the cotton of the splints from becoming soaked with the discharges or with the washing.

I consider this a very important precaution in the tropics, where decomposition goes on so rapidly that a few drops of pus soaked into the cotton of the splints will in a very few days develop worms. For this reason I also use alcohol in the treatment of wounds, and by means of a syringe I throw the alcohol in between the splints and the skin, with the object of evaporating the moisture that there may be, and avoiding thereby the formation of worms and also of bedsores.

A surgeon who has not practised in the tropics can not form an idea of the rapidity with which worms are developed in all cases where a limb has to be incased for many days, and where the immobility of the splints is absolutely necessary, as in fractures.

During the last four years I have used this method of applying splints in severe cases of compound fractures of the limbs, together with the alcohol treatment of the wound, with excellent results. In these cases I have seen very little inflammation, not so much suppuration as is usual in this class of cases, and very little fever.

Hippocrates, Paracelsus, and others employed wine as a dressing to wounds, and they did so under the impression that it dried the part, and with the belief that a dry condition was nearer a state of health, while humidity was nearer that of disease. Their followers used wine in which astringents were dissolved, such as gallnuts, oak bark, etc. They did it, moreover, with a view of arresting bleeding. In more recent times the alcohol dressing has been made popular by Nélaton, who used it largely and found it of value.

Dionis also used alcohol with good results. M. Chédevergne asserts that "camphorated alcohol is, beyond contradiction, the best disinfectant that can be found for the treatment of wounds and ulcers," and others allege that alcohol dressing has without doubt a cleansing and disinfecting influence on a wounded surface, while, at the same time, it helps materially to arrest capillary bleeding and that serous oozing which is so detrimental to primary union.

I should not dare as yet to give any decided opinion, but I can say that I have used the alcohol treatment in very severe cases with fine results, and I will go further and say that I do not consider the use of carbolic-acid or corrosive-sublimate solutions *essential* in the treatment of wounds, stating with this opinion that I have operated for cataract in about thirty cases in which I used no antiseptic solutions, but simply hot water for my instruments and for the washing of the eye, and always had excellent results.

In a very severe case of ovariotomy, where there were numerous adhesions, I washed the abdominal cavity with hot water that had previously been well boiled, and in more than sixty cases of laparotomies in which I assisted while in Bellevue Hospital as house surgeon in the service of the eminent physician, Professor Polk, simple hot water that had previously been well boiled was used for the toilet of the abdominal cavity, and no better results could be desired than were obtained in these cases.

The great ophthalmologist, Professor von Stellwag, of Vienna, never used, during the four months that I visited his clinics, anything more than boiling water for the disinfection of instruments, etc.

To conclude, I do not doubt for a moment the great antiseptic properties of carbolic acid or of corrosive sublimate, but I do believe that they are not essential in surgery, for equally good results are obtained with the use of simple hot water during the operation, and of alcohol in the dressing of the wound, as when the usual antiseptic solutions are used.

In the present case, after the resection of the femur, there was very little suppuration, there was no inflammation, and the highest temperature was, on the third day, only 101° F.; after that the temperature ranged between normal and 99·5° F. In this case hot water was used during the operation, and alcohol for the dressing.

The result of the operation is represented in Fig. 2. The shortening amounts to two inches and a half.

TESTS OF THE HÆMOGLOBIN OF PREGNANT WOMEN.

By ETHEL BLACKWELL, M. D.

In medical literature and medical practice such questions are often asked as, Are pregnant women anæmic? Is their hæmoglobin drained away by the developing child? And many statements have been made regarding the matter. Hitherto comparatively little practical work has been done in this line, but now many investigators are busy with examinations in various directions on blood, and before long we may hope for more light on the subject.

For the past four months, while at the Woman's Medical College of the New York Infirmary, I have made some tests of the hæmoglobin of pregnant women. The women were all normal cases—that is, none of them had any disease characterized by anæmia. I used the Reichert-Fleischl hæmometer (hæmoglobinometer). The locality tested was the ball of the middle finger of the left hand. The time at which the tests were made was as near 7 P. M. as possible, thus securing the same conditions for each test—namely, the relation to the third meal and exercise of the day—for more accurate comparison.

With the kind help of medical friends, it was possible to carry out work at the New York Infirmary for Women and Children, at the Emergency Hospital on Twenty-sixth Street, at the New York Infant Asylum, and at the Maternity Hospital on Blackwell's Island.

Tests were made on one hundred and sixty-three women:

94 in the 9th month (calendar).
38 " 8th "
15 " 7th "
13 " 5th and 6th months.
1 in the 4th month.
1 " 3d "
1 " 1st "

The average reading on the Fleischl scale was in the

9th month = 54·3
8th " = 56·0
7th " = 49·8
5th and 6th months = 51·5
4th month = 54·6
3d " = 53·3
1st " = 60·0

Or the general average for all the months together was 54·2. Putting it in another way—

0·6 per cent. = 90–100
2·5 " = 80– 90
9·2 " = 70– 80
15·9 " = 60– 70
30·1 per cent. = 50–60
36·2 " = 40–50
5·5 " = 30–40

It will be noted that the majority were between forty and fifty, and the next greater number were between fifty and sixty.

But having found that the general average was 54·2, or more accurately that 30·1 per cent. were between fifty and sixty, and 36·2 per cent. between forty and fifty, is it to be concluded that this is an anæmic condition?

Compared with forty women students whom I tested at Bryn Mawr College in 1892, half of whom were between eighty and ninety, and the rest about equally divided between seventy and eighty and between ninety and one hundred, this was a distinctly anæmic condition. But these pregnant women, it must be remembered, were of the servant class and subject to the air and conditions of New York city; and was this an anæmic condition when compared with non-pregnant women of their own class?

I have been able to make one hundred tests on non-pregnant women of this class with which to compare, the greater number being made at an intelligence office.

A general average of 53·1 was found; or

4 per cent. = 70–80
12 " = 60–70
52 " = 50–60
28 per cent. = 40–50
3 " = 30–40
1 " = 20–30

We find for the pregnant women a general average of 54·2 compared with a general average of 53·1 of the non-pregnant women. Or to compare more accurately, we find 30·1 per cent. of pregnant women between fifty and sixty compared with 52 per cent. of non-pregnant women between fifty and sixty; 36·2 per cent. of pregnant women between forty and fifty compared with 28 per cent. of non-pregnant women between forty and fifty; and 15 per cent. of pregnant women between sixty and seventy compared with 12 per cent. of non-pregnant women between sixty and seventy. We see, then, that in general there is a condition of anæmia in pregnant women, though this condition is by no means a striking one.

This result is obtained by comparing one hundred and sixty-three pregnant women with one hundred non-pregnant. If we take the first one hundred cases of the pregnant women (ninety-four obtained in the ninth month and six in the eighth month) and compare with one hundred non-pregnant women, we obtain from the one hundred pregnant women a general average of 54·5, or

3 per cent. = 80–90
10 " = 70–80
18 " = 60–70
26 per cent. = 50–60
38 " = 40–50
5 " = 30–40

Here again we reach the same conclusion.

The non-pregnant women were mainly between forty and seventy on the scale, while the pregnant women showed greater variation.

	Non-pregnant, 100 cases.	Pregnant, 169 cases (all months).	Pregnant, 100 cases (9th month + 6 in 8th month).
	Per cent.	Per cent.	Per cent.
90–100	0	0·6	0
80– 90	0	2·5	3
70– 80	4	9·2	10
60– 70	12	15·9	18
50– 60	52	30·1	26
40– 50	28	36·2	38
30– 40	3	5·5	5
20– 30	1	0·0	0

The further points in this article, though founded on a number of tests, are not based on so large a proportion of tests as are the previous statements, and therefore, though indicating a decided tendency, can not be taken as positive proof.

Twenty-three patients were tested in the eighth and ninth months of pregnancy, and again after delivery (within twelve days). The general average of these præ-partum was 60·5 and post-partum was 53·2; or, putting it another way:

	Præ-partum.	Post-partum.
	Per cent.	Per cent.
90–100	4·3	4·3
80– 90	0·0	0·0
70– 80	30·4	0·0
60– 70	13·1	21·7
50– 60	39·1	39·1
40– 50	8·7	26·1
30– 40	4·4	4·4
20– 30	0·0	4·4

Showing a general decrease after delivery.

Besides these twenty-three post-partum tests, thirty-two more were made on patients who had not been tested before delivery, equaling a total number of fifty-five post-partum tests. Taking these fifty-five tests, and averaging those taken under six days after delivery (twenty-eight in number) with those taken from six to twelve days after delivery (twenty-seven in number), we find a general average in this first set of 53·2, compared with a general average in the second set of 56·8; or, putting it another way:

	Under six days.	Over six days.
	Per cent.	Per cent.
90–100	0·0	3·7
80– 90	0·0	0·0
70– 80	10·7	7·4
60– 70	7·1	14·8
50– 60	50·0	59·3
40– 50	25·0	11·1
30– 40	7·1	0·0
20– 30	0·0	3·7

This shows a higher general average or a higher percentage in the later days after delivery. The probable explanation of this is the exhaustion and loss of blood during the first few days after labor.

It may be noticed in passing that the average of hæmoglobin from the sixth to the twelfth days after labor—that is, after a week's rest—is higher than the average of the hæmoglobin of non-pregnant women. But it must be remembered that this is not proved, for we have only twenty-seven cases to compare with the one hundred cases of non-pregnant women.

At the time of taking twenty-one post-partum tests I also tested the patients' babies by the same method and from the same finger. This table is so striking that I insert it bodily.

It is evident that a large manufacture of red blood-cells has been going on in order to keep up this supply to the mother and this large supply to the child. Four of these cases were tested within twelve to sixteen hours after delivery, and it would be interesting to know how much of the manufacture was done by the mother and how much in the organism of the child itself.

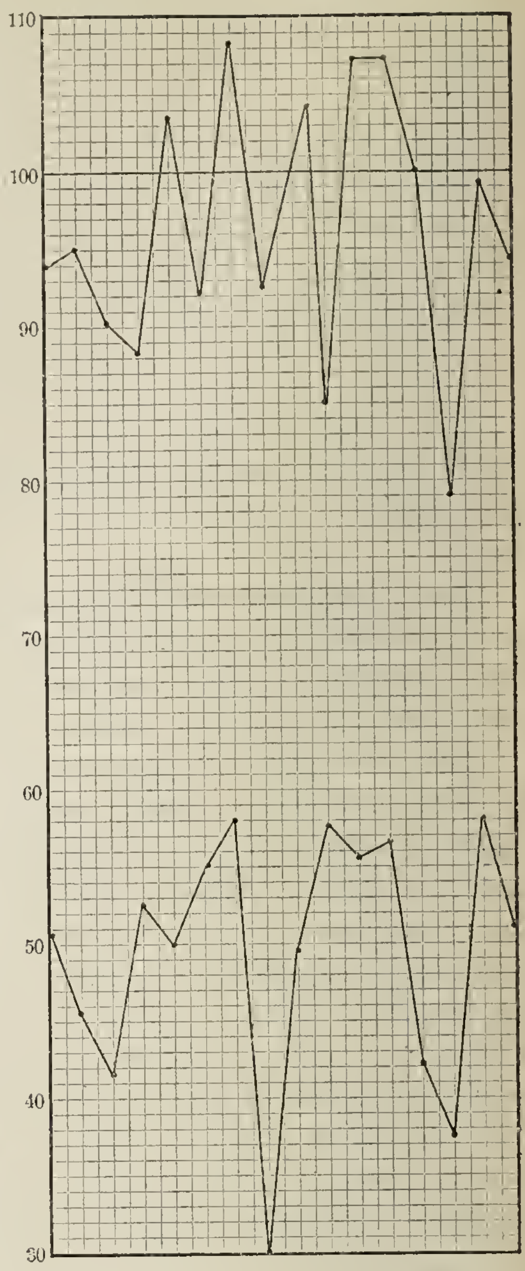
	Babies.	Mothers.
1	94·0 (boy).	50·7
2	95·0 (girl).	45·7
3	90·3 (boy).	41·7
4	88·3 (girl).	52·7
5	103·7 (girl).	50·0
6	92·3 (boy).	55·2
7	108·3 (boy).	58·0
8	92·7 (boy).	30·7
9	104·3 (boy).	49·7
10	85·0 (boy).	57·7
11	107·3 (boy).	55·7
12	107·3 (boy).	56·7
13	100·0 (boy).	37·7
14	79·0 (girl).	37·7
15	99·3 (boy).	58·0
16	94·3 (boy).	51·0
17	80·7 (boy).	44·7
18	81·0 (boy).	
19	60·0 (boy).	39·0
20	84·0 (boy).	
21	45·0 (boy).	34·5

Averaging the first sixteen cases, we see that the babies are 96·3 compared with the mothers at 49·6; or, putting it another way:

	Babies.	Mothers.
	Per cent.	Per cent.
100–110	37·5	0·0
90–100	43·8	0·0
80– 90	12·5	0·0
70– 80	6·2	0·0
60– 70	0·0	0·0
50– 60	0·0	62·5
40– 50	0·0	25·0
30– 40	0·0	12·5
20– 30	....	....

Nos. 17, 18, 19, 20, and 21 are interesting for other reasons. Eighty and seven tenths and eighty-one were twin boys four weeks old; the mother tested at the same time was 44·7. Sixty and eighty-four were twin boys three days old, delivered through four incisions made in the cervix of an eclampsic mother. Sixty was the largest child, was born first, and his cord was tied immediately. Eighty-four was the smallest twin. The mother was thirty-nine at the same time.

Forty-five was the test of a baby (taken when three weeks old) who was born suddenly of a blind mother without help, and whose cord was in some way torn, allowing hæmorrhage. The mother's test at the same time was 34·5.



The upper of these curves shows the readings of the babies plotted in the order of the tests taken.

The lower curve shows the mothers' readings. Each mother is plotted directly under her baby.

It is worth noting in passing that six of the first sixteen babies were a hundred or over. In adults very few tests of over a hundred have been recorded.

The question as to how much the blood of pregnant women was subject to variations during the day seemed to be worth considering. But these women were variable in appetite, and, of course, had little or no out-of-door exercise, and the variations their blood showed were irregular in time and amount. Variations between 6.30 A. M. and 9 P. M., tests being made four or five times during the day, were:

10·0	12·7	13·6
4·3	5·6	15·0
17·0	3·7	6·3
3·0	6·9	9·3
8·7	6·3	8·5
7·0	6·3	15·0
10·0	7·3	2·7
5·0	3·7	9·0
9·3	5·0	0·3
10·4	12·0	3·3

It will be seen that the variations were from 0·3 all the way up to 17. Or,

30 per cent. varied from 10 to 17.
47 " " " 5 to 10.
23 " " " 0 to 5.

Hence we see the need of like conditions, of time, meals, exercise, etc., as far as possible, in making hæmoglobin tests, and we understand that their value is comparative and not absolute.

It would be interesting and of value to compare with this work tests of pregnant women whose conditions in life were those of comparative luxury and ease.

I want to thank most cordially Dr. Eleanor B. Killam, Dr. Angenette Parry, Dr. Henry McM. Painter, Dr. James Clifton Edgar, and others, for their very kind help in obtaining for me the opportunity for doing this work.

OBSERVATIONS ON
EXCESSIVE INTESTINAL PUTREFACTION.*

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Attention was called, not long since, to the frequent occurrence of excessive intestinal putrefaction in epileptics,† and observations were brought forward to show that in some cases of epilepsy the occurrence of this condition appears at times to determine the epileptic seizure.

The facts brought to light in the study of this subject stimulated an inquiry into the occurrence and character of putrefactive processes in the intestine in clinical states other than epilepsy. This inquiry, which has been carried on during the past three years, makes it clear that deviations from the normal character and degree of putrefaction in the contents of the intestine are met in association with a variety of morbid states. The preparation of the present paper was prompted by the belief that disturbances of this nature have received less attention than from their practical importance (in both diagnosis and treatment) they seem to deserve. The following has been written with the object of presenting, first, the evidence we possess as to the existence of putrefactive processes in the intestine; second, certain facts as to the clinical conditions in which putrefaction occurs in excess; and, third, the principles that should enter into the management of cases where such excess is present.

During many years the belief has been gaining ground that various conditions of disease may arise, in man, through the absorption from the gastro-intestinal tract of toxic substances formed within it. For example, clinical evidence has suggested that some kinds of headache, most cases of urticaria, the prostration and fever associated with certain attacks of diarrhœa, and even many cases of simple anæmia, may depend upon the entrance of toxic materials into the circulation.

The well-known immediate symptoms of constipation bear out this idea, and perhaps no more striking clinical evidence can be found than the non-septic post-partum rise in temperature familiar to every obstetrician, which rapidly subsides after a thorough emptying of the bowel. And yet, while a good deal might be said in favor of the toxæmic origin of these and other states, it must be owned that the arguments for this view rest chiefly upon clinical considerations, and are at present unsupported by accurate knowledge of the nature of the pathological conditions involved. A partial exception to this statement may be made in the case of processes concerned in the putrefaction of proteid substances in the intestine.

It has long been known that a variety of aromatic substances, including indol, phenol, cresol, catechol, etc., are produced in consequence of the action of anaerobic bacteria upon proteids, and it has been known that this process of putrefactive decomposition occurs normally to some extent in the human intestine when nitrogenous food is introduced. In 1880 * a very important fact was brought to

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* Read before the New York Academy of Medicine, December 17, 1893.

† Observations on the Ætiology of Idiopathic Epilepsy, by C. A Herter, M. D., and E. E. Smith, Ph.D. *New York Medical Journal*, September 3, 1892.

* At present little is known of the special bacteria that give rise to the various products of putrefaction that are met in health and disease. The following facts relating to this subject have been ascertained:

Numerous micro-organisms are capable of inducing putrefaction of albuminous substances. In the initial stages of the process aerobic and facultative anaerobic bacteria usually play the most important part, while in active putrefaction they are supplemented or perhaps replaced very largely in the latter stages by strict anaerobics, organisms which have received comparatively little study. Among the facultative anaerobic bacteria probably the most important and ordinary exciters of putrefaction are the bacilli of the proteus group; they are of common occurrence and possess to a high degree the power to produce putrefactive decomposition. *Proteus vulgaris* (Hauser, *Ueber Fäulnissbakterien*, Leipsic, 1885) and *Proteus mirabilis*, the commonest species, are liquefying motile bacilli and grow rapidly in the usual culture media at ordinary temperature. Other putrefactive bacteria are *Bacillus coprogenes fœtidus* (Schattelius, *Der Rothlauf der Schweine*, Wiesbaden, 1885), found in the intestine of a diseased pig; *Micrococcus fœtidus* (Klamann, *Allg. med. Centralzeitung*, 1887, p. 1344), from the posterior nares of a man; *Bacillus pyogenes fœtidus* (Passet, *Untersuchungen über die eitrigen Phlegmone des Menschen*, Berlin, 1885), obtained from an abscess of the anus; *Bacillus putrificus coli* (Bienstock, Ueber die Bakterien der Fäces, *Zeitschr. für klin. Med.*, 1884, Bd. viii), from adult fæces; *Bacillus fluorescens liquefaciens* (Flügge, *Die Mikro-organismen*), a very common form occurring in putrid infusions; *Bacillus coli communis* (Emmerich, *Deutsche med. Wochenschr.*, 1884, No. 50), found in the air, in putrefying infusions, in normal and abnormal fæces, and elsewhere; and *Bacillus pyocyaneus* (Gessard, De la pyocyanine et de son microbe, *Thèse de Paris*, 1882), occurring in green and blue pus, and probably a widely distributed saprophyte. *Bacillus cadaveris grandis* (Sternberg, *Report on the Ætiology and Prevention of Yellow Fever*, Washington, 1891, p. 21) is a large bacillus obtained from the interior of dead animal matter in a state of putrefaction and belongs to the strict anaerobics.

When intestinal contents and normal fæces are examined, a very large number of micro-organisms are to be found. Even the milk fæces of sucklings are no exception in this regard, since normally at least two varieties of bacilli are present (Escherich, *Die Darmbakterien des Säuglings*, 1886): *Bacillus lactis aerogenes*, which is more abundant in the small intestine and produces an acetic-acid fermentation of milk sugar, and *Bacillus coli communis*, most abundant in the large intestine, which, besides giving rise to an acetic-acid fermentation, occasions the formation of large quantities of lactic and formic acids. No true putrefaction occurs, however, since milk casein is not changed by these bacilli. In catarrhal enteritis the alvine discharges contain a much larger number of micro-organisms, while in diarrhœa associated with toxic symptoms one or more species of the proteus group appear to be constantly present (Booker, *Trans. of the Amer. Pædiatric Soc.*, vol. i, 1889, p. 198). Thus the bacterial condition of milk fæces is comparatively simple and well illustrates the relation that exists between bacterial growth in the alimentary tract and some forms of disease. But the intestinal contents of adults with a mixed diet present a far more difficult problem. Here a much larger variety and number of micro-organisms are normally present, producing changes in all the different classes of foods, including even putrid decomposition of proteids. Indeed, over fifty known species have been isolated from intestinal contents; and in addition to these are many unidentified and perhaps unknown species found in normal and pathological conditions. The commonest form appears to be *Bacillus coli communis*; probably certain strict anaerobics not yet carefully studied play an important part.

The particular products formed by albuminous putrefaction will delight by Baumann—namely, that these various aromatic bodies, however formed within the intestine, are at last eliminated from the body (if absorbed) through the urine, almost exclusively in combination with sulphuric acid, in the form of ethereal sulphates.

There is reason to think that other acids than sulphuric acid may enter into combination with the aromatic bodies formed in the intestine, but notwithstanding this the ethereal sulphates are undoubtedly the form in which by far the greater part of these bodies is eliminated. The ethereal sulphates therefore become an index of the amount of putrefactive products absorbed from the intestine, and the determination of their amount in the urine is an indication whether the putrefactive processes are or are not excessive.

This fact is the basis of the present study of intestinal putrefaction as well as of many previous investigations upon the same subject. It therefore becomes of the highest importance to inquire more carefully into the nature of the evidence on which this fundamental proposition rests.

Evidence that the Ethereal Sulphates of the Urine are derived from the Putrefaction of Proteid Substances in the Intestine.—We may now pass to the consideration of the evidence which proves that the ethereal sulphates of the urine are derived from the putrefaction of proteid substances within the intestine.

Sulphuric acid occurs in the urine in two combinations —first, as neutral salts of the alkalies, the so-called "preformed" sulphates; and, second, as ethereal or aromatic sulphates,[*] which are combinations of sulphuric acid or acid sulphate of potassium with various aromatic substances, particularly indol, phenol, and skatol, and to a less extent with cresol and catechol or pyrocatechin. The quantity of sulphuric acid in this combination which is excreted daily by normal adult individuals varies considerably both in the same and in different persons. We have found that in most persons the daily output ranges between 0·12 gramme and 0·25 gramme.[*] The quantity excreted by the urine of course gives us no information as to the proportion in which the sulphuric acid is combined with indol, phenol, skatol, etc., since these individual and special combinations constitute no fixed proportion of the total. In most cases in health the combination with phenol, phenol-potassium sulphate, is the most abundant of the ethereal sulphates.

It is known that the aromatic substances are occasionally eliminated through the urine in combination with glycuronic acid, but this occurs in the urine in such small quantities that, except after the administration of certain drugs, it may be considered to be practically absent.

The various ethereal sulphates of the urine were at one time thought to be derived from the aromatic substances taken with the food, in much the same way that hippuric acid and its salts may originate. Some kinds of food taken by man may furnish the material for the formation of ethereal sulphates in small amount, and under these circumstances this may explain the presence of a small part of the aromatic sulphates; but, as a rule, the food of man contains little of an aromatic nature, and it has been found that upon an ordinary diet the ethereal sulphates from this source amount to practically nothing.

This view of the origin of the ethereal sulphates had therefore to be abandoned. It was replaced by the theory of Salkowski,[†] who, as late as 1886, expressed the belief that one of the ways in which the ethereal sulphates arise is through their formation in the tissues of the body. The facts which seemed to give support to this view were as follows: Salkowski[‡] found that in starving animals the urine contained large quantities of indoxyl-potassium sulphate (indican). Another observer, R. Van der Velden,[#] found that the ethereal sulphates were reduced only one half in a dog which had been kept without food for periods of five and six days. Further, Senator,[‖] studying cases of chronic inanition in human beings, observed that in many instances the urine contained an abnormally large amount of a particular ethereal sulphate—indoxyl-potassium sulphate (indican). It is, of course, easy to see how these facts might be interpreted to support the theory of the formation of the aromatic sulphates outside the alimentary tract—that is, in the tissues themselves—but the classical observations of Baumann[△] were destined soon to put an entirely new aspect upon the matter. These observations were made upon a patient who for many weeks passed the intestinal contents through a fistula in the upper portion of the small intestine. Baumann found that during the

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pend on the nature and condition of the material, the conditions under which it is placed, and the particular micro-organisms inducing the change. Toxic proteids are formed by bacterial growth under some conditions, both from living protoplasm and in contact with proteids not associated with living tissues; but they are not usually found in active putrefactive changes. The greatest resistance which is offered to albuminous decomposition is in the initial stages of the process, the peptonization of the proteid; and if this be already completely accomplished by other than bacterial ferments, as in pancreatic digestion, then the conditions are much more favorable for active bacterial growth with the characteristic formation of ptomaines and other putrefactive products. The nature of these is well illustrated by Bienstock's study of *Bacillus putrificus coli*. In Cohn's nutrient solution, containing fibrin in suspension, into which small quantities of these bacilli were introduced, the following substances were produced—namely, peptone, ammonia, amine bases, fatty acids, amido fatty acids, tyrosine, phenol, paraoxyphenylpropionic acid, paraoxybenzoic acid, indol, skatol; further, when the bacilli were allowed to act on the individual products, the lower series of decomposition products were produced; for example, tyrosine gave rise to paraoxybenzoic acid, the latter to phenol, etc., the final products being the simple gases, carbon dioxide, ammonia, methane, etc.

[*] They are also known as combined sulphates.

[*] These figures are based on a large number of personal observations. Von Noorden gives the same figures; but, as he points out, the amounts may exceed or fall below them without necessarily being pathological.

[†] Ueber die Entstehung der aromatischen Substanzen im Thierkörper. *Zeitschr. f. physiolog. Chemie*, Bd. x, 1886, S. 266.

[‡] *Berichte der deutsch. chem. Gesellschaft*, Bd. ix, S. 408.

[#] Ueber die Ausscheidung der gepaarten Schwefelsäuren im Harn. Virchow's *Archiv*, Bd. lxx, S. 343, 1872.

[‖] *Ctrlbl. f. d. med. Wissensch.*, 1877.

[△] Die aromatischen Verbindungen im Harn und die Darmfaulniss *Zeitsch. f. physiolog. Chemie*, Bd. x, 1886, S. 126.

entire period in which the intestinal contents were diverted through the fistula there was a remarkable diminution in the amount of the ethereal sulphates in the urine, indol, phenol, and the aromatic oxyacids being present in mere traces. Just as soon as the fistula was closed a pronounced increase occurred in the amount of the ethereal sulphates excreted by the urine. The interpretation very properly given these results was that the occurrence of putrefaction in the contents of the intestine is the cause of the production of the ethereal sulphates, these substances appearing in the urine when the fæces are passed by the anus because of the opportunity then given the intestinal mucous membrane to absorb whatever putrefactive products are formed in the gut, but disappearing very largely when the intestine is emptied above by the artificial anus, because putrefaction of the intestinal contents is only just beginning at this stage of digestion, and the amount of the putrefactive products capable of being absorbed by the mucous membrane is very small. In the light thrown by these crucial observations of Baumann, some earlier studies made by Ewald* became significant. Ewald had in 1878 made observations upon a case of intestinal fistula resembling Baumann's, and had noticed that, so long as the chyme was discharged through the opening, the urine was free or nearly free from phenol and indol, but that these substances reappeared in normal or excessive amounts as soon as the fæces were passed *per anum.* A very satisfactory and interesting confirmation of the results of Baumann and Ewald, from another point of view, was furnished in 1888 by Kast and Baas.† Their observations were made upon a case of complete occlusion of the small intestine from cancer. The occlusion persisted twenty-three days, and during this time a large amount of the ethereal sulphates was regularly found in the urine. At the end of this period the stoppage was relieved by operation, and there at once followed a great diminution in the amount of aromatic sulphates excreted. We have ourselves observed a very large increase in the ethereal sulphates and in indican in a case of occlusion of the small intestine in the jejunum from external pressure at the time when this stoppage was established. Pointing in the same direction are the results obtained by Baumann and Wassilieff,‡ who found that there was a complete disappearance or at least a great reduction in the ethereal sulphates eliminated by starving animals when the contents of the intestine were pretty well got rid of by the use of large doses of calomel for several days. Morax,# working a few years later, got practically the same results with calomel. He found also that very large doses of iodoform in dogs freed the urine temporarily from the presence of ethereal sulphates. All these results, reached as they have been by competent observers, furnish strong evidence that the tissues in health have nothing to do with the formation of aromatic sulphates, and the conclusion is justified that intestinal putrefaction is in health the sole source of their formation, barring only the trivial influence of food containing aromatic substances.

In connection with the view that the ethereal sulphates might be formed by the tissues it is of interest to note that Müller* was unable to find any evidences of the presence of these aromatic putrefactive products in the muscles and parenchymatous organs in health. He found, however, that the fæces of starving animals contained indol, and this fact was only an additional confirmation of the correctness of the view that the presence of ethereal sulphates in the urine of starving animals does not constitute any evidence that their production occurs in the tissues, but is far better explained on the ground already mentioned. It should further be borne in mind that, as already mentioned, Kuhne† and Nencki have shown conclusively that indol is exclusively the product of the action of bacteria upon proteids. If it should be held that possibly the aromatic substances may be produced by the action of bacteria in normal tissues, the fact should be remembered that Meissner, Zahn, and Hauser‡ were unable to find bacteria in normal tissues. The *Bacillus coli communis* has indeed been repeatedly found in spleens that were apparently normal, but only, we believe, where there has been ulceration of the intestinal mucous membrane.

The view that the ethereal sulphates arise as the result of intestinal putrefaction is the only view which accords with observed facts. It does explain these facts fully, and is supported by a large amount of satisfactory experimental and clinical evidence. It may be added that, so far as we are aware, this explanation of the origin of the ethereal sulphates of the urine has been accepted by all modern writers upon chemical physiology and pathology.

We must note one important exception to the origin of the aromatic substances from the putrefaction of proteids in the intestine. The ethereal sulphates may be increased in consequence of putrefaction in other parts, especially where there is extensive suppuration without free drainage. Such an increase has been observed in abscess in various parts, in tuberculous lung cavities, and in cases of empyema. It is scarcely necessary to emphasize the importance and the difficulty of excluding intestinal sources of excess before concluding that an excess of the combined sulphates, or of any particular product of putrefaction, is due to a suppurative process.

The use of certain drugs of an aromatic nature may enormously increase the output of the ethereal sulphates, and may lead to serious error if the origin of the excess be not appreciated. Thus we have found a great increase from the use of salol in two individuals, the increase being

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* Ueber das Verhalten des Fistelsecrets und über Phenol- und Indican-Ausscheidung bei einem an Anus præternaturalis leidenden Kranken. *Archiv für path. Anat.*, Bd. lxxv, S. 409, 1879.

† Zur diagnost. Verwerthung der Aetherschwefelsäureausscheidung im Harn. *Münchener med. Woch.*, No. 4, 1888.

‡ *Zeitschr. f. physiolog. Chemie*, Bd. vi, S. 112.

# Bestimmung der Darmfäulniss durch Aetherschwefelsäure im Harn. *Zeitschr. f. physiolog. Chemie*, Bd. x, S. 318, 1886.

* Indicanausscheidung durch den Harn bei Inanition. *Mittheil. d. Würzburger medic. Klin.*, Bd. xi, S. 342–353, 1888. Ortweiler (*ibid.*, S. 153) found that in fever, with increased destruction of tissue, there was no increase of indican; but this fact can not properly be used as an argument against the formation of ethereal sulphates in the tissues.

† *Berichte d. deutschen chem. Ges.*, Bd. xviii, 1875, S. 206.

‡ *Berichte d. deutschen chem. Ges.*, Bd. viii, 1875, S. 336; also, *Ueber die Zersetzung der Gelatine und des Eiweisses bei der Fäulniss mit Pankreas*, Bern, 1876, S. 31.

referable to the elimination of the phenol of the drug.* The use of creosote must be attended with the same result. Von Jaksch † has recently called attention to a largely increased output of aromatic sulphates noted by him in a patient who had been poisoned with benzosol, the increase being doubtless due to the combining of the drug with sulphuric acid.

How are we to decide whether, in a given case, the ethereal sulphates are in excess or not, whether we have or have not to deal with an example of excessive intestinal putrefaction? This is a question of the highest practical importance, for unless our criterion of excess be essentially accurate there is danger of falling into grave error in the interpretation of results. As already stated, the quantity of sulphuric acid excreted daily in health as ethereal sulphates varies ordinarily between such wide limits as 0·12 gramme and 0·25 gramme.‡ But the quantity may be increased to 0·3 gramme or even 0·4 gramme without our being able to say from the quantity alone whether we are dealing with an excess, for the quantity of proteid food ingested may be very large, and we should expect that the opportunity for the activity of putrefactive bacteria would be greater in this case. On the other hand, the amount eliminated may lie between the figures mentioned, and thus be apparently normal. But the quantity of proteid food may have been unusually small, so small and of such a kind (milk, meat) as to be accompanied in perfectly normal digestion by the elimination of even less than 0·12 gramme in the day. The mere amount, therefore, does not afford a thoroughly satisfactory criterion, though it is a help, and should always be regarded. A consideration of the ratio of the ethereal to the total or preformed sulphates is an important aid to the interpretation of the results.

The value of taking into account this ratio was first emphasized by Van der Velden, and its utility has been appreciated by many subsequent writers. The use of the ratio is based upon the fact that in normal persons the average ratio of the ethereal to the preformed sulphates is not higher than 1 to 10 or perhaps 1 to 9, and is often as low, even on a mixed diet, as 1 to 12 or 1 to 15. Indeed, in our own experience, persons in the best of health have more frequently a ratio in the neighborhood of 1 to 12 than 1 to 10. The sulphates have nothing whatever to do with putrefaction in the intestine, but are derived in the metabolism of proteid food from the sulphur which this contains, and it thus happens that the total sulphates bear a relation to the amount of proteid absorbed, which in turn is related to the amount of proteid food ingested. When, therefore, we say that the ratio of the combined to the preformed sulphates is found to be in the neighborhood of 1 to 10, without much reference to the amount of proteid food ingested, this is very much the same as saying that in normal conditions the opportunity for the activity of putrefactive bacteria in the intestine seems to be proportioned to the amount of proteid food taken. The use of the ratio is thus equivalent to taking into consideration the amount of proteid food ingested and absorbed. The total sulphates, as might be expected, are found to bear a fairly constant relation to the amount of urea—the actual ratio being from 1 to 10 to 1 to 14, in most cases not far from 1 to 12. This ratio, as we have found, is often singularly constant in a given individual. We might, therefore, make our comparison between the ethereal suphates and the urea; but this is less convenient in practice than to make the comparison with the preformed sulphates. If, however, the sulphates become disproportioned to the urea, as they occasionally do, we can not rely upon the ratio, but should take into consideration what the ratio would have been if the sulphates had been normal This rather roundabout course is not thoroughly satisfactory.

It should be mentioned that some writers (F. Muller,* Kast and Baas,† Salkowski, ‡ and von Noorden #) object to the use of the ratio on the ground that if we compare the ethereal sulphates which arise exclusively from intestinal putrefaction with the total or preformed sulphates which are derived from the metabolism of proteids and have nothing to do with intestinal putrefaction, we are comparing incommensurable things. While it is perfectly true that the two kinds of sulphates have a different meaning, the considerations above referred to render this comparison reasonable and practically useful, and this view is shared by many actual workers upon the subject, including Biernacki,‖ Rovighi,△ G. Hoppe-Seyler,◊ and E. Baumann.‡ But though we advocate strongly the use of this ratio as a criterion of the output of the ethereal sulphates, we recognize fully the fact that it should not be employed blindly, and that even when employed with every precaution there are occasional cases in which it is difficult to reach a satisfactory conclusion as to whether the ethereal sulphates are present in excess or not.

In the preceding we have considered some of the fundamental facts relating to the aromatic sulphates as a group. We may now review to advantage certain facts relating to particular members of this group, especially indoxyl-potassium sulphate and phenol-potassium sulphate.

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* In one case where the subject had been excreting about 0·200 gramme of ethereal sulphates daily on a mixed diet, the amount rose to 0·446 gramme and 0·662 gramme on ten grammes of salol three times a day, and to 0 933 gramme, 0·955 gramme, and 0·966 gramme, on twenty grammes of salol daily. The ratios were 3·7 and 1·7, and 0·6, 0·6, and 0·8 during the two periods respectively.

† Ein Fall von anscheinender Vergiftung mit Benzosol. *Berl. klin. Wochenschr.*, February 27, 1893.

‡ Calculated as H_2SO_4.

* Ueber Icterus. *Zeit. f. klin. Med.*, 12, S. 63, 1887.

† *Loc. cit.*, S. 55.

‡ Ueber den Einfluss der Phenylessigsäure auf den Eiweisszerfall. *Zeit. f. physiol. Chem.*, 12, 223, 1889.

# Ausnutzung der Nahrung bei Magenkranken. *Zeit. f. klin. Med.*, 17, 529, 1890.

‖ Ueber die Darmfäulniss bei Nierenentzündung und Icterus. *Deutsches Arch. f. klin. Med.*, Band xlix, H. 1, 1891.

△ Die Aetherschwefelsäuren im Harn und die Darmdesinfection. *Zeit. f. physiol. Chem.*, xvi, 20–26, 1892.

◊ Ueber die Ausscheidung der Aetherschwefelsäuren im Urin bei Krankheiten. *Zeit. f. physiol. Chem.*, Bd. xii, 1888.

‡ Die aromatischen Verbindungen im Harn und die Darmfäulniss. *Zeit. f. physiol. Chem.*, Bd. x, 1886.

Indoxyl-potassium sulphate, or indican, is practically the most important of the ethereal sulphates, partly because of its relation to pathological conditions and partly because of the readiness with which its presence is ascertained, which has led to much more general observations upon it.

It is derived from an aromatic volatile substance, indol, which is formed in the intestine from putrefaction of proteids. Indol has the formula C_8H_7N. By oxidation indoxyl, C_8H_7NO, is formed, which is eliminated in the urine as indoxyl sulphate of potassium, $C_8H_6NOSO_3K$. The latter substance, when pure, crystallizes in white glancing tablets and plates. It was called indican in the mistaken belief that it is identical with the indican of plants, and the name has clung to it on account of its convenience. When this indican undergoes oxidation indigo blue is formed, and gives to the urine a characteristic blue color. Indigo blue is *not* indican; its presence is evidence of the pre-existence of indican in the urine. The reaction by which the change into indigo-blue occurs is as follows:

$$\underbrace{2\,C_8H_6NKSO_4}_{\text{Indoxyl-sulph. of potassium.}} + O_2 = \underbrace{C_{16}H_{10}N_2O_2}_{\text{Indigo blue.}} + \underbrace{2\,HKSO_4.}_{\text{Pot. hydrogen sulph.}}$$

If it is difficult to determine what constitutes an excess of the ethereal sulphates in some cases, it is even more difficult to say exactly how much indigo blue a urine may yield and still be normal. We believe that it is safe to make the general statement that the quantity consistent with a high grade of health and well-being is very small.

The occasional appearance of small amounts of indican in the urine of an adult does not necessarily mean any appreciable disturbance of digestion, but the regular occurrence of even moderate amounts is always associated, in our experience, with evident digestive disorder, and must therefore be regarded as abnormal. It is hardly possible to express by figures the smallest quantity of indigo blue in the twenty-four-hours' urine which must be regarded as pathological, for it is necessary in every case to take into consideration whether the patient is robust or feeble, and whether the condition of health is less good when indigo blue is present than when it is not—whether or not symptoms can with reason be associated with its presence. But it is probably correct to say that the quantity of indigo blue in the urine which amounts to a mere trace (corresponding to say one to two milligrammes in the twenty-four hours) can not be considered distinctly pathological, while an amount greater than five milligrammes in the twenty-four hours (an amount which gives a weak but distinct reaction with the Jaffé test) must in the great majority of persons be so considered. An even smaller amount of indigo blue in the urine of children under say five years of age is to be considered pathological. In our experience we have never met with indican in amounts greater than traces without this being associated with evident disorder of digestion. It may indeed be questioned whether in children even a trace can be considered strictly normal. These statements are based upon the examination of a large number of urines from carefully studied cases.

According to Senator,[*] the urine of newly born children contains no indican. We have made only a few observations on children at this time, but have never found even traces.

Since indican is an ethereal sulphate, the question naturally occurs to one, Is the relation of this substance to the total ethereal sulphates of the urine a fixed or a variable one? It may be said that there is in general a rough correspondence between them, that when indican is present in large amounts the total ethereal sulphates are apt to be excessive, and when indican is absent we are rather more apt than not to find the total sulphates normal. But to these rules there are so many exceptions that one almost hesitates to speak of them as rules. There are many cases where the ethereal sulphates are normal both as regards totals and ratio, where indican is present in pathological amounts and perhaps in greatly increased amounts. There are likewise cases, and they are even more numerous than those just mentioned, where the total ethereal sulphates are in pronounced excess, but where indican is altogether absent.

Pathological quantities of indican have been found in a great variety of different conditions. Salkowski[*] has observed such an increase in perityphlitis and peritonitis; Brieger,[†] in chronic anæmias and cachexias; Jaffe,[‡] in malignant disease of the intestine; Senator,[#] in chronic peritonitis and cancer of the stomach; De Vries,[‖] in tubercular peritonitis and obstruction of the small and of the large intestine; Henninga,[△] in pernicious anæmia, typhus, cholera, lead colic, phthisis, acute and chronic gastritis, chronic suppuration in any part, progressive muscular atrophy, and Addison's disease; Gutmann,[◊] in the exudate of pleurisy—and this list might be much extended. In every case where indigo blue is obtained in pathological amounts the condition may be referred to the putrefaction of proteid material, usually within the intestine, but sometimes outside it in the tissues. Just what are the special conditions that give rise to the increase of indican rather than the other aromatic sulphates we can not say. In all probability the aromatic bodies formed in putrefaction in the intestine vary, among other influences, with the kinds of bacteria which exist in the intestine. According to Lewandowski[‡] certain bacteria produce both indol and phenol, while others produce either indol alone or phenol alone. But the study of this aspect of the subject is only just begun.

Some observations have been made upon the influence of the digestive secretions in the formation of indol. Thus, according to G. Pisenti, indican depends largely upon the activity of the pancreatic juice. This view is based upon experiments on dogs, in which it was found that the amount of indican in the urine grows much less (after first increasing) when the pancreatic juice is experimentally cut off. Pisenti * further regards the disappearance of indican in high fever, when the pancreatic juice is no longer secreted, as bearing out his conclusion. But though these observations are not sufficiently numerous to be regarded as conclusive, even upon the question whether the shutting off of the pancreatic juice regularly influences the formation of indol, it seems to be highly probable that the action of the pancreatic juice in producing tyrosine is an important, though not necessary, condition for the production of indican. We know, further, from the very interesting studies of Ernst, that so long as the bile is present in the intestine it is possible to have indol formed in large amount, probably because of the fact that the mucus of the bile furnishes material very favorable for certain kinds of putrefactive decomposition. This latter observation is of especial interest in connection with the circumstance, to be emphasized later, that catarrhal conditions of the small intestine are associated with the output of indican in pathological amounts.

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[*] *Zeit. f. physiol. Chem.*, iv, p. 1.

[*] *Ctrlbl. f. d. med. Wissensch.*, No. 14, S. 818, 1876.

[†] *Zeit. f. physiol. Chem.*, Bd. xi, S. 221.

[‡] *Arch. f. gesammte Physiologie*, Bd. xxx, S. 485, and *Ctrlbl. f. die med. Wissensch.*, Nos. 31–32, 1872.

[#] *Ctrlbl. f. d. med. Wissensch.*, Nos. 20–22, 1877.

[‖] Ueber Indican im Harn. *Inaug. Dissert.* Kiel, 1874.

[△] *Deutsch. Archiv f. klin. Med.*, Bd. xxiii, S. 271–287.

[◊] Indigobildende Substance in einem Exudate. *Deutsch. med. Wochenschr.*, No. 51, 1887.

[‡] *Deutsche med. Wochenschr.*, 1890, No. 51, S. 1186. See also Baumann, *Zeit. f. physiol. Chem.*, who states that indol is formed in large amount by the comma bacillus of cholera.

According to de Vries † and Filati,‡ the small intestine is exclusively concerned with the formation of indol, in distinction to the large intestine, in which, according to Filati, skatol is the chief aromatic body formed. But this generalization, though attractive, is not as yet based upon sufficient evidence to enable us to accept it without hesitation, though it is to be noticed that the researches of Ernst, mentioned above, accord in some measure with this view.

Opposed to it are the direct observations of Macfayen, M. Nencki, and N. Sieber. They, in a case of intestinal fistula, withdrew the contents of the intestine through a fistula at the lower end of the ileum and found an entire absence of putrefactive products and an almost entire absence of putrefactive organisms, the decomposition present, referable to micro-organisms, being limited to carbohydrates. These observations do not, however, exclude the possibility of the putrefaction of proteids in the small intestine in catarrhal or other abnormal conditions.

A substance which is formed in considerable amount in intestinal putrefaction is carbolic acid or phenol (C_6H_5OH). It may be derived in part in the intestine from the breaking up of tyrosin. It is absorbed as phenol, but somewhere in the body (the liver, according to Baumann) is converted into phenol sulphate of potassium.

(*To be continued.*)

Yale University.—The annual address in medicine will be given in Battell Chapel on Tuesday, the 25th inst., at noon, by Dr. T. Mitchell Prudden, of New York, on the subject of New Outlooks in the Science and Art of Medicine. In the evening the medical faculty will hold a reception in honor of Dr. Prudden at Dr. William H. Carmalt's house.

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* Ueber den Zusammenhang zwischen der Einwirkung des Pancreassaftes auf die Eiweisskörper und die Indicanmenge im Harn. *Arch. per le scienze med.*, xii, No. 5, 1887.

† *Loc. cit.*

‡ *Gazzetta chimica italiana*, vol. xiii, 1889.

REPORT OF
SOME CASES OF FIBROUS ANKYLOSIS TREATED BY ELECTROLYSIS.*

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In the spring of 1893 I prepared a paper on Electrolysis in the Treatment of Fibrous Ankylosis for reading before the New York Surgical Society, which was published in the *Annals of Surgery*, August, 1893.

The interest shown in this subject, as evidenced by numerous letters received, has encouraged me to select it for a further paper, which I have the honor to present to this society.

The method of application I gave in detail in the former paper, and it will suffice if I mention, before proceeding to the cases I wish to report, that I make use of the continuous current, moderately large electrodes, and a solution of ammonium chloride. The current is passed directly through the joint, with the negative pole nearest the adhesions. The application lasts from ten to thirty minutes, and is repeated every two to five days. The amount given depends on the susceptibility of the patient to pain, the condition and amount of reaction of the skin, and the size of the electrodes. It will range from forty to one hundred and fifty milliampères.

Case I.—Mr. H., aged twenty-two. In August, 1892, he received a Pott's fracture of the left ankle. On January 17, 1894, he was sent to me for galvanism by Dr. W. H. Thomson.

Examination.—The patient complained of pain after moderate use of the foot, stiffness especially marked in the morning, and after excessive use, such as an evening's dancing, the foot would be stiff and sore for two or three days. Physical examination showed a slight deformity, and he was barely able to put the heel to the ground when standing erect with feet together. Motion at the ankle was not more than five degrees.

After one month's treatment (twelve applications) he had about twenty degrees of motion, which was freer; also he had considerably less discomfort and pain after prolonged use.

The treatment was continued another month, but without further benefit.

Case II.—Miss W., aged twenty-five years, was sent to me by Dr. W. H. Thomson on April 17, 1894, with a history of acute articular rheumatism in the previous September, which left her with a partial ankylosis of the right elbow and left middle metacarpo-phalangeal joints.

Elbow: Pronation and supination perfect.	
Flexion and extension before treatment	74°
After fifth application	83·5°
After twelfth application	98·5°
Gain	24·5° (33%).
Middle finger:	
Flexion and extension	9°
After fifth application	25·5°
After twelfth application	36·5°
Gain	27·5° (305%).

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* Read before the Society of Alumni of Bellevue Hospital, May 1, 1895.

The twelfth application was made on May 16th. Improvement continued during five or six subsequent applications and gradually stopped. Electricity was then discontinued.

Before treatment the patient was unable to perform numerous duties, such as dressing the hair, buttoning a dress, piano-playing, etc., except with great discomfort, all of which had disappeared when treatment was stopped.

Case III.—Mr. A., aged thirty-one years. On September 18, 1894, he fell and received a Colles's fracture of the left wrist. Was treated in splints for nine weeks. Ten weeks after the accident he was sent to me, and I found on examination the wrist to be almost stiff; at most he had ten degrees of motion. Swelling was marked and he had pain on the slightest motion.

After two applications complete motion was restored, there was an absence of all pain, and the swelling was much reduced. He resumed work the following week.

Case IV.—Mrs. H., aged twenty-six years. Entered Bellevue Hospital in June, 1894, with a diagnosis of tubercular (?) synovitis of the knee. She was treated until November 18th by plaster immobilization. She was then treated by galvanism.

Before treatment: Total motion	5°	
After second application	16°	
After ninth application	29°	
Gain	24°	(480%).

Duration of treatment, twenty-one days. Nine applications of one hundred and twenty milliampères for fifteen minutes.

Case V.—Mr. R., aged twenty-five years. Received a fracture of the left patella on August 2, 1894. On removal of the dressings there was found entire absence of active and passive motion. During the interval from that time till November 18th, when electricity was begun, he gained some motion.

After third application, total motion	15°	
After tenth application	42°	
Gain	27°	(180%).

Duration of treatment, seventeen days. Seven applications of one hundred to one hundred and twenty milliampères for fifteen minutes.

Case VI.—Mr. McC., aged twenty-three years. Entered Bellevue Hospital with a supposed tubercular synovitis of the left knee. The joint was opened and the condition found to be non-tubercular. After closure of the wound motion was limited and accompanied by grating; the swelling was marked and the patient walked with a limp caused by pain.

On November 18, 1894, the galvanic current was applied.

After first application, total motion	52°	
After eighth application	112°	
Gain	60°	(115%).

The eight applications covered a period of forty-three days, after which the patient left the hospital with the above-indicated gain in motion, much less swelling, no grating, and he walked without pain or limping. One hundred to one hundred and twenty milliampères were applied for fifteen minutes.

Case VII.—Master J., aged eight years. Entered Bellevue Hospital with a traumatic synovitis of the left knee. Plaster immobilization was applied for four weeks. Galvanism was begun immediately on removal of the plaster (November 18, 1894).

After first application, total motion	3·5°	
After second application	20·5°	
After fifth application	90°	
Gain	86°	(2150%).

Duration of treatment, fourteen days. Five applications. When discharged, there was but little swelling, and the patient could walk very well and without pain.

Case VIII.—Miss C., aged nineteen years. In August, 1893, this patient had an attack of rheumatic arthritis which resulted in stiffness of the right knee in the straight position.

On November 30, 1894, when I first saw her, there was practically complete ankylosis, there being but the slightest perceptible motion between the femur, tibia, and patella.

The galvanic treatment was begun and continued faithfully with three applications a week until April 6, 1895. During this time about ten degrees of motion was produced and the patella became slightly movable.

On April 6th, under ether, the adhesions were broken forcibly until flexion to a right angle was obtained, the patella also being freed. Two days after, there having been but slight reaction following the traumatism, electricity was again begun and has been continued to the present time with no improvement. The patient is extremely sensitive and intolerant of pain, and has aided me little or none during treatment.

Case IX.—Mr. W., aged fifty-three years. On October 14, 1894, this patient fractured his humerus in the lower part. On removal of the dressings, the elbow being found somewhat stiff, the galvanic current was applied.

Before application, total motion	72°	
After fourth application	102°	
Gain	30°	(41·5%).

Duration of treatment, twenty-four days.

Case X.—Mr. P., aged sixty-four years. On September 27, 1894, the patient received a fracture of the surgical neck of the left humerus. When the dressings were removed there was found but limited motion at the shoulder and elbow.

December 6, 1894, began applications of the galvanic current to the shoulder and elbow.

Elbow: Before application, total motion	24·5°	
After fifth application	77·5°	
Gain	53°	(212%).

Duration of treatment, twelve days. Five applications. The notes received give no specific record of the improvement at the shoulder, merely stating that "motion at the shoulder was greatly increased from the first application." I report the case as an illustration of the benefit derived in cases of loss of motion following disuse.

Case XI.—Mr. F., aged twenty-one years. About 1890 the pateint injured his right elbow. In 1893 Dr. George Woolsey operated and found bony union between the humerus, radius, and ulnar, which he relieved.

On January 9, 1895, he appeared for further treatment.

Before application, total flexion and extension	70·5°
After first application	76·5°
Gain	6°

The patient did not return, and has not been seen since.

Case XII.—Mrs. B., aged thirty years. In January, 1895, the patient received a Colles's fracture of the left wrist, which was treated by splints for five weeks. On removal of the dressings motion at the wrist was limited and painful. Œdema appeared promptly, but was not marked.

Electricity was applied three times a week for two weeks, when there was almost complete motion and disappearance of the swelling, with good use of the hand and fingers.

Case XIII.—Mr. G., aged thirty-five years. In January, 1895, the patient sustained a dislocation of the left shoulder,

CAUSE.	Interval before treatment.	DURATION OF TREATMENT.		RESULTS.			
		Time.	Number of applications.	Gain in motion.	Pain.	Swelling.	General condition.
Injury: Case I.....	17 months.	2 months.	24	15°.	Much less.	....	Much less discomfort.
Case III....	10 weeks.	1 week.	2	Complete.	None.	Slight.	
Case V.....	3½ months.	17 days.	7	27°, 180%.	....	....	Much better.
Case VII...	1 month.	14 "	5	86°, 2,150%.	None.	Slight.	Very much improved.
Case IX....	7 weeks.	24 "	4	30°, 41½%.	....	....	Good use of joint.
Case X.....	9 "	12 "	5	53°, 212%.	....	....	Good use of joint.
Case XI....	18 months.	....	1	6°.			
Case XII...	5 weeks.	14 days.	6	Complete.	None.	None.	Good use of joint.
Case XIII..	4 "	21 "	9	Complete.	None.	....	Good use of joint.
Disease: Case II....	8 months.	3 months.	30	Elbow: 24½°, 33%. Finger: 27½°, 305%.	....	....	Was able to make her toilet properly and resumed piano-playing.
Case IV....	5 "	21 days.	9	24°, 480%.	....	....	Very much improved.
Case VI....	....	43 "	8	60°, 115%.	None.	Less.	Could walk well and without pain.
Case VIII..	16 months.	5 months.	60	10°.	....	....	Not much improved.
Case XIV..	5 "	21 days.	8	....	....	....	No improvement.

Was in dressings four weeks. There was then found atrophy of the shoulder muscles and very limited motion, which was painful.

Electricity was applied three times a week for three weeks; at the end of this period all motions of the shoulder were normal and without pain, and the muscles had regained in great part their size and tone.

I have treated a number of other cases of which the above-given are types in a degree and give a fair idea of the classes of cases suitable to this treatment and the result that may be expected.

The majority of these cases were treated at Bellevue Hospital, where the regularity of application and length of time of each were necessarily interfered with; also the patients were often hard to control, insisting on their discharge as soon as enough motion was obtained to enable them to work, and before a cure was effected. This explanation will, I hope, answer the criticism as to why so few cures are reported.

A study of the results obtained will force the following conclusions:

1. That the best results are obtained in cases of injury.
2. That the shorter the interval between the injury and the beginning of the galvanic treatment, the more rapid and the greater the improvement.
3. That the greater improvement is exhibited after the first few applications, and then it is slow.
4. That all cases of injury showed great and immediate improvement. In disease it was much slower, and in two of the five cases failed.
5. That the improvement was marked in the following directions:
    1. Increased motion.
    2. Lessened pain.
    3. Reduced swelling.
    4. Nearer normal circulation.
    5. Increased general usefulness.
6. That it is applicable and very satisfactory in all cases of fibrous ankylosis, especially of recent origin, and to be recommended in cases of injury particularly, and that it should be applied immediately on removal of dressings as a routine treatment.

While the application is more or less painful, the improvement is so marked that no patient is unwilling to have it continued.

I wish to express my thanks to Dr. R. M. Taft, of the Bellevue staff, for help in collecting the cases.

CASTRATION:

A SIMPLE, EASY, AND RAPID METHOD OF PERFORMING IT.

By H. H. KANE, M. D.

Having performed the operation of castration a number of times, both for the radical cure of prostatic enlargement and for other purely local diseases of the testicles, I have of late been following a procedure that affords, I think, manifest advantages over the ordinary operation. This is especially true where the subject is over fifty years of age, and where prolonged etherization is apt to produce bad after-results. The rapidity with which this operation can be done, consistent, of course, with thoroughness and safety, is, it seems to me, a very important factor in its success.

Furthermore, as in the majority of cases where castration is necessary, or at least is performed, every measure that will reduce to a minimum shock or after-calls upon the system for the healing of a large surface, even if a primary union is obtained, will manifestly lessen the primary and secondary dangers of the operation, and yield better after-results.

Professor White states that he has frequently performed the operation for total removal of both testicles in three minutes. This may be possible in the hands of so expert a surgeon as Professor White; but the majority of operators will find it exceedingly difficult, after the patient is etherized, to make the long incision on each side of the front of the scrotum, tie both cords by double ligature, peel out the testicles, and close each long incision by a number of interrupted sutures in three minutes' time. This is even more difficult where, as in the majority of cases, there is considerable hæmorrhage from small vessels that have been divided or torn through, that must be twisted or ligated.

With a view of reducing the time necessary for keeping the patient under ether, decreasing the shock, and limiting the length of the incision, as well as producing perfect coaptation of the cut edges, avoiding the necessity of drainage-tubes, insuring union by first intention, and doing away with the consequent drain upon the system where prompt union is not secured, I have recently performed the following operation, and can commend it as both simple and successful:

The pubes being shaved, thoroughly cleansed with soap and water, and rendered aseptic with a one-to-three-thousand bichloride solution, the scrotum is grasped in the left hand, and diagonal incisions of about an inch in length are made upon each side of the root of the penis, commencing just below the external ring. The cord on each side is seized and drawn out by means of a blunt tenaculum, is pierced with a sharp aneurysm needle threaded with a heavy double catgut ligature, and is tied each way after the removal of the needle. The scrotum, which has been resting between hot sponges to thoroughly relax the tissues, is then drawn well down so as to include both testicles in the grasp, a Henry's scrotal clamp is applied, and both testicles are removed, together with that portion of the scrotum included in the clamp, to within about an inch of the posterior portion of the root of the penis.

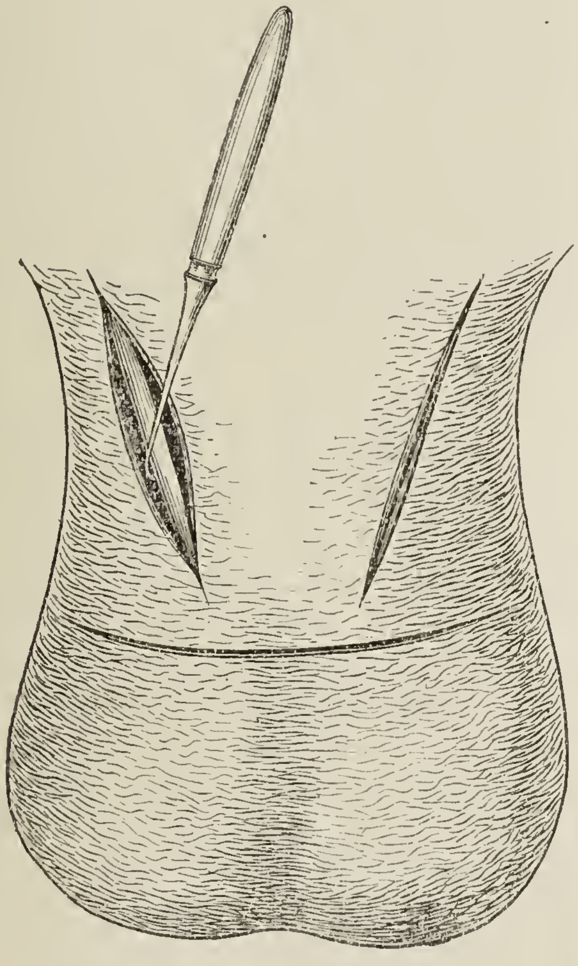

Fig. 1.—Showing the three original incisions.

After removing the outer flange of the Henry clamp, the clamp is slightly relaxed, all bleeding points are secured, and the edges are then closed by interrupted sutures of catgut. The two short incisions just below the groin are closed in the same manner, after pulling out and cutting short the stumps of the two cords, and the catgut ligatures, cut off close to the knot, are allowed to drop into the wound. Before applying the Henry clamp and removing the scrotum it is well, as a matter of precaution, to pass a warm and well-oiled sound into the urethra, so that by no mischance the canal may be injured.

The wound is now dressed with a layer of protective tissue, after having been thoroughly cleansed and rendered aseptic, and upon this are placed from six to ten layers of iodoform gauze and above this six or eight layers of sublimate gauze. Cutting a small piece of strong cardboard or sole leather into the shape of a horseshoe, and slipping it underneath the scrotum and its dressings, thus keeping them away from the anus, does away with the necessity of a bandage of any kind. Over the last layer of gauze I place a sheet of rubber tissue, perforated so as to admit of the passage of the penis, and thus not only keep the dressings clean in case of any dribbling of urine, but prevent the contamination of the wound in any way. Union by first intention is the rule. The whole operation is performed in a very few moments and the results are satisfactory in the extreme, the patient's temperature rarely rising above the normal.

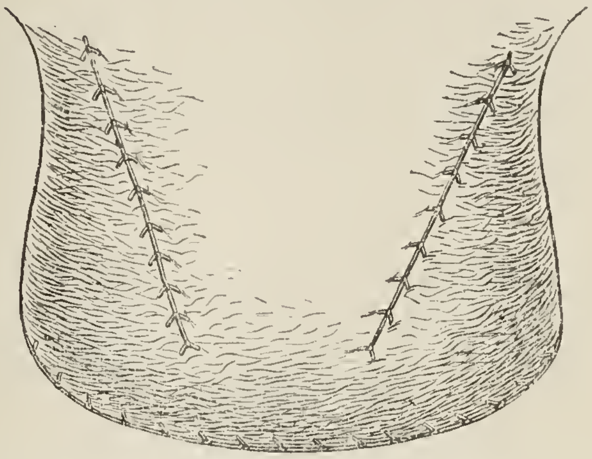

Fig. 2.—Showing the three incisions closed by interrupted sutures and the scrotum shortened.

I shall soon have the pleasure of reporting five cases of castration for enlarged prostate gland, with full details as to the measurement of the urethra, size of the prostate gland, etc., with the confirmatory evidence of other physicians who examined the patients before the operations and were present during the same.

The plan suggested by Professor Bryson, of Cleveland, of making deep injections of cocaine into the substance of the cord itself and of the scrotum, and thus making this operation absolutely painless and without the necessity of using ether at all, is a very interesting one, but one which I have tried but once.

June 7th.—Since writing the foregoing I have performed the operation of double castration with slight modifications of the method above described. Instead of using the Henry clamp across the scrotum and making a transverse incision, I placed the clamp from before backward, running from in front of the anus to the root of the penis.

After removing the scrotum and testicles, which was very rapidly done, and which was followed by very little bleeding, I closed the wound by interrupted sutures, and this will give, I think, a much better result than the transverse incision. It certainly leaves no pocket for the collection of purulent matter, and the wound practically heals itself.

Since the operation there has been no rise in temperature, and the patient, who had been urinating, by means of the catheter only, every hour for the past five years, was able within twenty-four hours after the operation to go in comfort an average of four hours, and rises from the bed to pass the catheter upon himself; his temperature has not risen above 99° F. The dressings remain practically undisturbed.

There were present at the operation Dr. Charles T. Jewett, 162 West Twenty-second Street, New York city, and Dr. Henry S. Graves, 66 West Eighty-fourth Street, New York city, for whose kind assistance I am very much indebted.

PREDISPOSITION OF CHILDREN TO LUNG COMPLICATIONS

AS A RESULT OF WHOOPING-COUGH, SCARLET FEVER, OR MEASLES.*

By FRANK McMORROW, M. D.,
SURGEON, SOLVAY PROCESS, ETC.

The predisposition of children to lung complications following infectious diseases is favored either by allowing the freer entrance of germs, or by a weakening of the powers of resistance.

In those rhachitic children who have gone through a severe attack of pertussis, measles, or scarlet fever, their vitality, which was very weak from the first, is now almost exhausted, and changes easily take place in the respiratory tract, giving rise to bronchitis or broncho-pneumonia, which comes on insidiously.

If, after our case has commenced to improve, the temperature still remains high, the pulse more or less accelerated, and the general condition of the child remains poor, or becomes worse, we then suspect, before we auscultate or percuss the chest, that some changes in pulmonary structure have taken place. One of the most common sequels is a wide spreading of broncho-pneumonia. It runs a very tedious course, and causes considerable annoyance, especially to the young physician who has worked hard to bring his case through successfully, and at the end finds that he now has a complication to treat in one who is almost exhausted from paroxysms of coughing, and whose vitality is so much lessened as to be unable to withstand a siege of such severity. Most of these cases, on account of the lessened resistance of the child, result disastrously. In one whose general nutrition has been impaired, tuberculosis is very likely to develop, and many a case of consumption can be traced as following whooping-cough or measles.

Professor Edward G. Janeway said he was always suspicious of a child who, during convalescence from the above-named diseases, continued to cough, and whose temperature remained high. He watched the child carefully and made repeated examinations, and in the majority of cases his suspicions were confirmed.

The lung complications of whooping-cough are of inflammatory origin, bronchitis and pneumonia being the most frequent. In almost every case of pertussis we have in a mild form inflammation of the bronchial tubes; but when the inflammation extends to the minuter tubes we have a more serious difficulty to deal with. Bronchitis is accompanied by increased respiration, accelerated pulse, and higher temperature. The amount of danger involved is in proportion to the dyspnœa. Pneumonia is less common than bronchitis, but it is a very frequent complication, as the congestion which results from the cough predisposes to its development. The signs and symptoms that prevail in a case of pneumonia which coexists with pertussis are the same as those that prevail in a case of simple pneumonia, except that the respiration is accompanied by a peculiar expiratory moan.

Not long ago I attended a well-marked case of whooping-cough in a child five years of age who apparently was otherwise in excellent physical condition. The child seemed to get along very nicely, and appeared perfectly well between the paroxysms of coughing, but the temperature remained a little above normal, and the pulse was quite rapid. I could not account for this state of affairs till on auscultation I found the respiratory murmur very harsh and vesiculo-bronchial in character, with a diffused number of sonorous and sibilant râles.

I gave what I thought the proper treatment, but the temperature and pulse increased and dyspnœa became more marked. After five days the breathing had lost its last vestige of softness and was entirely bronchial, and associated with it a number of small bubbling râles. I could not check the progress of the infection, and found I was confronted with a well-marked case of broncho-pneumonia. The child rallied along for over three weeks, but with little changes daily. I called counsel, but the child died in the fourth week of her broncho-pneumonia.

In measles we are liable to the same lung complications as in whooping-cough, but in this disease pneumonia occurs as a sequel more frequently than in any other constitutional malady of early life. Complications may occur in measles at any period, but they commence most frequently in the first stages.

In a fatal case of bronchitis which I attended some time ago the respiration was unlike the ordinary from the start, and the little patient became so nervous that she could not remain quiet for a dozen seconds. The pulse after the first few days, instead of becoming slower, as is generally the case, became more rapid. Subcrepitant râles were very abundant, and the dyspnœa increased so rapidly that the child died of suffocation at the end of the fifth day.

Pneumonia is very protracted and fatal in measles. It is usually of the lobular form. If the child recovers it generally leaves him weak and debilitated for some time to come, and prone to succeeding attacks. Professor J. Lewis Smith records a number of cases of pneumonia following measles in which the patients recovered from the first attack, but eventually they succumbed to the same lung affection inside of a few years.

Tuberculosis is a common sequel. It generally rises in the bronchial glands, which become enlarged during the progress of the disease. The glands offer a splendid field for the development of the germs. Consumption may also begin in some of the patches of a broncho-pneumonia, and from these foci a more or less widely spread infection may start.

In scarlet fever the lungs are not so liable to become affected as in whooping-cough or measles. Still, the eruption may extend down the mucous membrane to the larynx, to the trachea, or to the bronchi, giving rise to pneumonitis, pleuro-pneumonia, or emphysema, or possibly stir up some latent tubercle bacilli and be the beginning of pulmonary

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* Read before the Onondaga Medical Society, May 14, 1895.

tuberculosis. The treatment, therefore, should not only embrace that of the infectious disease, but also be directed to the prevention of various possible subsequent ailments.

It is not very long ago that the practice was common among the laity of putting their children, while they were still young, among other children suffering with acute infectious diseases, so that they would contract the disease, and not be liable to it when they grew older. But the parent could hardly have recognized the serious troubles which were very likely to result from this practice, leaving the child with a lessened power to resist or overcome the numerous maladies which are so liable to affect growing children.

The room in which the patient is confined should be entirely free from germs of any description. It would certainly be a reprehensible practice to allow a child with measles to remain in a room that was formerly occupied by a consumptive, as the bronchial mucous membrane is so inflamed from congestion as to offer a fruitful soil in which tubercle bacilli might begin their deadly work. The mucous membrane of the nose, mouth, and throat should be disinfected daily, and if we can only keep these parts thoroughly antiseptic, we are sure of preventing any further infection.

Vitiated air and overcrowding are two of the most important predisposing elements, especially in tuberculosis. Most mothers think that if they keep their rooms warm, be they ever so close, their greatest duty is performed. It is the physician's place to look after the ventilation, as, no matter how the rooms may be arranged, the air can be kept pure, wholesome, and free from contaminating germs. Impure air not only favors the distribution of bacilli, but lowers the nutrition of the patient and favors their development in the body.

The general health of the patient should be maintained if possible. This might be done by the use of a mild tonic, such as gentian, iron, or calumba. An excellent remedy, which is frequently used in the hospitals of New York, which builds up the constitution and does not disarrange the stomach, is the application of cod-liver oil to the chest. This is absorbed and acts as a food, besides being very soothing to the inflamed bronchial tubes.

One of the great difficulties in the way of successful treatment is the management of children during convalescence. When improvement is noticeable and health has partly returned, the child wearies of restraint, and seizes every opportunity to mingle and play with other children. The mother, sympathetic and affectionate, but unwise, seeks to be convinced that strength and health have returned, places no check upon the inclination of the child to romp and roam about, and by the very act—the prompting of love, no doubt—subjects the yet delicate little creature to many and serious dangers, such, for instance, as exposure to drafts, which not infrequently results in severe attacks of bronchitis or pneumonia. Parents or nurses should be made to appreciate the imprudence of allowing children to leave their beds before complete convalescence. If they refuse to be guided by the good words of advice given, they will then learn the lesson through the sad experience of the little one's death. It will then be too late for caution. Grief steps in and reigns.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.
Published by
D. Appleton & Co.
Edited by
Frank P. Foster, M. D.

NEW YORK, SATURDAY, JUNE 22, 1895.

NAVAL SURGEONS UNDER SENTENCE OF DISMISSAL.

We lately mentioned the case of Dr. Kershner, a medical inspector in the United States Navy, who was then about to be tried by a court martial on charges that included one of perjury. We regret to say that Dr. Kershner has been convicted and sentenced to be dismissed. We are, however, confident in the hope and expectation that this sentence will not be executed. It is intimated in press dispatches that the court was prevented by the regulations from receiving important testimony in behalf of the accused, and debarred from passing on the constitutionality of those regulations and from taking into consideration the animus that is alleged to have led to the charges being brought. It is added that Secretary Herbert will give a hearing to Dr. Kershner's counsel before indorsing the sentence, and that it is doubtful, in any event, if the President will approve of the court's decision. Certainly nobody who knows Dr. Kershner can for a moment entertain the thought that he intended to do any wrong, whatever technical infraction of the regulations he may have committed, and if the sentence under which he rests is carried out the department will find itself still further hampered in the task of recruiting its medical corps.

A somewhat similar case, as we learn from the *Australasian Medical Gazette*, has lately occurred in the British Navy. Surgeon Lea and his commanding officer appear to have quarreled, and the bad blood aroused seems to have so worked upon the captain as to lead him into a course of conduct that induced the surgeon to think it his duty to put him on the sick list. Then the captain placed the doctor under arrest, and the outcome of the affair has been Surgeon Lea's conviction of contemptuous behavior and disobedience of orders. On this conviction he, too, has been sentenced to dismissal. It is manifest that in this case also the convicted officer did not intend to do any wrong; to use the language of the *Gazette*, he simply did "in an irregular manner what was in his opinion a proper proceeding." What recourse there may be for Surgeon Lea we do not know, but we ardently hope that both he and Inspector Kershner may not have to submit to the sentence of dismissal.

HYSTERECTOMY.

It is but a few years since the operation of excision of the uterus was first resorted to as a forlorn hope in cases of cancer. The results attained to by means of the procedure in warding off death were for some time not of a character to hold out much promise, and the operation itself was exceedingly hazardous, so that Freund stood almost alone as its champion. All that has been marvelously changed, and excision of the uterus is now practised with such frequency as to be almost an everyday matter; it is often done for diseases that practically do not tend to shorten life or to render it very burdensome, and it is sometimes done, we fear it must be said, for no other reason than that a not overconscientious practitioner wishes to be able to say that he has done it. This is true of almost all surgical operations, but they are not all so mutilating, they do not all put life in appreciable peril, and they do not all entail peritoneal adhesions. It can not be doubted that the uterus is often removed when it is still equal to the task of gestation, and when at the same time there is no real need of the operation.

In the installment of the proceedings of the recent meeting of the American Gynæcological Society that we publish this week there will be found an interesting and wholesome debate on this subject. It is monstrous, we hold, to advocate excision of the uterus because the organ is affected with benign neoplasms that at most give rise to quite moderate trouble, and we are glad to find that Dr. Emmet, in the discussion referred to, cast the great weight of his opinion against it. There never was greater need of conservatism than now, especially as regards this particular operation.

MINOR PARAGRAPHS.

THE HARLEM HOSPITAL.

The stories that have lately appeared in some of the livelier of our newspapers implying dereliction of duty on the part of the medical staff of this hospital and the imminence of their dismissal seem to have resolved themselves into the simple fact that the commissioners of public charities and correction have determined that the staff shall be reorganized on the basis that prevails in the case of Bellevue Hospital—*i. e.*, each of the three large medical schools to have a representative and the profession at large another. Such an arrangement may be proper enough in itself, but we do not think the commissioners will be acting in fairness toward the gentlemen of the present staff if they dismiss them in order to carry it out; it would be fair, however, to work into it gradually as vacancies occurred in the usual way.

CLEIDOTOMY.

Dr. Phänomenoff, of Kasan, in an article published in the *Centralblatt für Gynäkologie* for June 1st, recommends this operation in cases in which, after the fœtal head has passed the brim of the pelvis, the shoulders are arrested and can not be so manipulated as to be made to enter the pelvic cavity. The procedure consists in cutting through each clavicle, together with the soft parts overlying it, with a strong pair of shears. This results in a notable lessening of the bisacromial diameter, and the shoulders soon accommodate themselves to the pelvic canal.

ITEMS, ETC.

The New York Polyclinic.—Dr. Wilbur B. Marple has been elected professor of ophthalmology; Dr. W. R. Pryor, professor of gynæcology; and Dr. W. R. Townsend, professor of orthopædic surgery.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending June 18, 1895:

DISEASES.	Week ending June 11.		Week ending June 18.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	10	5	8	4
Scarlet fever	64	14	66	10
Cerebro-spinal meningitis	3	2	4	6
Measles	378	39	279	32
Diphtheria	227	36	226	38
Small-pox	0	0	0	0
Tuberculosis	110	115	0	0

The University of Pennsylvania.—A portrait of the late Dr. William Goodell and a bronze bust of the late Dr. Joseph Leidy have been given to the university.

The Belgian Society of Surgery.—The Société belge de chirurgie has elected Dr. Lewis A. Sayre, of New York, an honorary member as an acknowledgment of his great services to surgical science.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 9 to June 15, 1895:*

Brechemin, Louis, Captain and Assistant Surgeon, will be relieved from duty at Columbus Barracks, Ohio, upon the return from leave of absence of Walters, William E., Major and Surgeon, and will proceed to and take station at Baltimore, Md., as attending surgeon.

Clarke, Joseph T., Captain and Assistant Surgeon, is relieved from duty at Fort Omaha, Nebraska, and ordered to Fort Washakie, Wyoming, for duty, relieving Raymond, Henry I., Captain and Assistant Surgeon. Captain Raymond, on being thus relieved, is ordered to Fort Niagara, New York, for duty at that post.

Gardner, Edwin F., Captain and Assistant Surgeon, is relieved from duty as attending surgeon and examiner of recruits in Boston, Mass., and will report in person to Alden, Charles H., Colonel and Assistant Surgeon General, president of the examining board appointed to meet in this city, for examination by the board as to his fitness for promotion, and upon conclusion of his examination he will report for duty at Fort Grant, Arizona.

Maus, Louis M., Major and Surgeon, is granted leave of absence for one month and twenty days, to take effect on or about August 10, 1895.

Perley, Harry O., Captain and Assistant Surgeon, will report in person to Alden, Charles H., Colonel and Assistant Surgeon General, president of the examining board appointed to meet in this city, at such time as he may be required by the board for examination as to his fitness for promotion, and upon the conclusion of his examination will proceed to Hot Springs, Ark., and take charge as commanding officer of the Army and Navy General Hospital, relieving Woodhull, Alfred H., Lieutenant Colonel and Deputy Surgeon General. Lieutenant-Colonel Woodhull, on being thus relieved, will report in person to the Commanding General, Department of the Colorado, for duty as medical director of that department, relieving Huntington, David L., Lieutenant Colonel and Deputy Surgeon General. Lieutenant-Colonel Huntington, on being thus relieved, will report in person to the Surgeon General for duty in charge of the Museum and Library Division of the Surgeon General's Office, relieving Billings, John S., Lieutenant Colonel and Deputy Surgeon General.

RICHARDS, CHARLES, Captain and Assistant Surgeon, is relieved from duty at the United States Military Prison, Fort Leavenworth, Kansas, to take effect June 30, 1895, and will proceed to comply with the order for him to take station at St. Louis, Mo.

RICHARDS, CHARLES, Captain and Assistant Surgeon, is granted leave of absence for three months, to take effect when he shall be relieved from his present duties, on or about June 30, 1895.

TOWN, FRANCIS L., Colonel and Assistant Surgeon-General, is granted leave of absence for two months, to take effect about July 1, 1895.

WAKEMAN, WILLIAM J., Captain and Assistant Surgeon, will be relieved from duty at Fort Thomas, Kentucky, upon the arrival there of GIBSON, ROBERT J., Captain and Assistant Surgeon, and will report for duty at Fort Huachuca, Arizona, upon the expiration of the leave of absence granted him.

WALES, PHILIP G., Captain and Assistant Surgeon, now on temporary duty at Fort Niagara, New York, will return to his proper station upon the arrival of RAYMOND, HENRY I., Captain and Assistant Surgeon, at that post.

WYETH, MARLBOROUGH C., Captain and Assistant Surgeon, is granted leave of absence for two months, to take effect the latter part of August, 1895.

PILCHER, JAMES E., Captain and Assistant Surgeon, will be relieved from duty at Fort Niagara, New York, upon the expiration of his present sick leave, and will report in person to the commanding officer, Columbus Barracks, Ohio, for duty at that station.

Promotions.

To be Assistant Surgeons with the rank of Captain after five years' service, June 6, 1895:

KEEFER, FRANK R., First Lieutenant and Assistant Surgeon.
RAYMOND, THOMAS U., First Lieutenant and Assistant Surgeon.
SNYDER, HENRY D., First Lieutenant and Assistant Surgeon.
SMITH, ALLEN M., First Lieutenant and Assistant Surgeon.
HEYL, ASHTON B., First Lieutenant and Assistant Surgeon.
CLARKE, JOSEPH T., First Lieutenant and Assistant Surgeon.

Marine-Hospital Service.—*Official List of the Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the Fifteen Days ending June 15, 1895:*

PURVIANCE, GEORGE, Surgeon. Relieved from duty at Philadelphia, Pa. (temporarily), and detailed for duty on board relating to Ford's Theatre disaster. June 8, 1895.

WHEELER, W. A., Surgeon. Detailed as chairman of the board for physical examination of candidate for the Revenue-Cutter Service. June 1, 1895.

BROOKS, S. D., Passed Assistant Surgeon. Granted leave of absence for twenty-one days. June 14, 1895.

WHITE, J. H., Passed Assistant Surgeon. Detailed as recorder of the board for physical examination of candidate for the Revenue-Cutter Service. June 1, 1895.

PETTUS, W. J., Passed Assistant Surgeon. Granted leave of absence for thirty days. June 6, 1895.

COFER, L. E., Assistant Surgeon. To inspect unserviceable property at San Diego Quarantine Station. June 12, 1895.

CUMMING, H. S., Assistant Surgeon. Relieved from temporary duty at Boston, Mass., and ordered to rejoin his station at New York, N. Y. June 3, 1895.

Society Meetings for the Coming Week:

MONDAY, *June 24th:* Medical Society of the County of New York; Boston Society for Medical Improvement; Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *June 25th:* Medical Society of New Jersey (first day—Cape May); Medical Societies of the Counties of Essex (annual—Elizabethtown) and Lewis (annual), N. Y.; Buffalo Obstetrical Society.

WEDNESDAY, *June 26th:* Medical Society of New Jersey (second day); American Microscopical Society of the City of New York; New York Pathological Society; Metropolitan Medical Society, New York (private); Medical Society of the County of Albany; Philadelphia County Medical Society.

THURSDAY, *June 27th:* New York Orthopædic Society; Pathological Society of Philadelphia.

FRIDAY, *June 28th:* New York Society of German Physicians; Philadelphia Clinical Society; Philadelphia Laryngological Society; Cleveland, O., Medical Society.

Births, Marriages, and Deaths.

Married.

CHASE—HANFORD.—In New York, on Wednesday, June 12th, Dr. George Thorndike Chase and Miss Lauretta Adelaide Hanford.

GIGNOUX—FOWLER.—In New York, on Wednesday, June 12th, Mr. Robert Miles Gignoux and Miss Louise Munford Fowler, daughter of Dr. Edward P. Fowler.

LAMB—ROUFFEAU.—In New Orleans, on Saturday, June 8th, Dr. J. Hope Lamb and Mrs. Elizabeth Rouffeau.

MONCUR—SLACER.—In Buffalo, on Wednesday, June 12th, Mr. Robert M. McCheyne Moncur and Miss Florence Louise Slacer, daughter of Dr. W. H. Slacer.

STRATEN—HUBERTUS.—In Dansville, N. Y., on Tuesday, June 11th, Dr. Hubert J. Straten, of Chicago, and Miss Lizzie M. Hubertus.

WARNER—YOUNG.—In Montreal, on Wednesday, June 12th, Dr. L. F. Warner, of New York, and Miss Elise H. Young, of Montreal.

Died.

HEBERT.—In New Iberia, La., on Friday, June 7th, Dr. Thomas Hebert, aged forty-two years.

RUTHERFORD.—In Rochester, on Wednesday, June 12th, Mrs. Ida M. Rutherford, wife of Dr. M. C. Rutherford.

WITHERS.—In Paterson, N. J., on Monday, June 17th, Dr. Henry D. Withers.

Letters to the Editor.

RICKETS AND SCURVY.

201 WEST FIFTY-FOURTH STREET, NEW YORK, *June 17, 1895.*

To the Editor of the New York Medical Journal:

SIR: Dr. Henry D. White's report in the *Journal* of June 15th of A Case of Rickets with Exaggerated Mouth Symptoms is of such interest and practical importance that I beg a few lines of your valuable space to note that scurvy well accounts for all the symptoms enumerated. Swollen and bleeding gums, with disability and exquisite tenderness of the lower extremities, in an artificially fed infant, point to scurvy rather than rickets as the cause, though the two diseases may coexist; and if the symptoms rapidly disappear on the exhibition of fresh food or fruit acids the demonstration is practically conclusive. The disorder has been well described by Dr. William P. Northrup in the *Archives of Pædiatrics* for January, 1892, and the *New York Medical Journal* for May 26, 1894, and by others.

The fact that scurvy in infants has only recently been recognized in this country, and the great importance of an early diagnosis, are my apology for this communication.

Henry Ling Taylor, M.D.

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112 East 128th Street, New York, *June 15, 1895.*

To the Editor of the New York Medical Journal :

Sir: In his article, A Case of Rickets with Exaggerated Mouth Symptoms, Dr. H. D. White complains that he has been unable to find much allusion to such symptoms in any of his reference books. The reason is a very simple one. The fact is —I am sorry to say it—the doctor has been treating, not a case of rickets, but a most typical and characteristic case of infantile scorbutus.

The doctor says that the symptoms prominent in this disease (rickets) were all absent in this case, but what struck him forcibly was the hypertrophy and sponginess of the gums, and upon this—the most characteristic symptom of scurvy—he made a diagnosis of rickets. Well, *errare humanum est.*

The acuteness of the attack alone would point toward scurvy. As Cheadle and Barlow have demonstrated, and as Osler says in his *Practice* (page 311), "The disease known as acute rickets is in reality a manifestation of scurvy and will be described with that disease." Add to this the acute severe pain in the lower limb, with the absence of deformity (in rickets there is only a diffuse soreness, and deformity is frequent), the sponginess and bleeding of the gums, etc., and the diagnosis of scurvy is established beyond the possibility of contradiction.

Some may say that the treatment was not antiscorbutic—no lemon juice, fresh vegetables, etc.—and the improvement was nevertheless rapid. In a discussion that took place after the reading of a paper, Scorbutus in Infancy, before the Medical Society of the County of New York on April 23, 1894, by Dr. W. L. Carr (see *Medical Record*, vol. xlv, pp. 812, 820), the majority of the gentlemen expressed the opinion that all that was necessary in the treatment of scurvy was good, nourishing, and varied diet. I remember hearing Dr. Joseph E. Winters say that his treatment of scurvy consisted in the use of cream, cod-liver oil, and beef juice—the same treatment that was followed in this case.

William J. Robinson, M. D.

DIPHTHERIA ANTITOXINE SERUM.

Spirit Lake, Iowa, *May 27, 1895.*

To the Editor of the New York Medical Journal:

Sir: Prompted by the universal professional interest in the serum treatment of diphtheria, I will, if you please, report the following case—the only one in which I have used the antitoxine: I was called on April 5, 1895, to see a farmer's little son, nine years of age, ill with membranous croup. This was at 10 a. m. on Sunday. On the Thursday preceding he arose not feeling well and somewhat hoarse, but went to school. Came home at noon, feeling worse and decidedly more croupy. He passed a bad night, and on Friday morning a physician was called. The usual remedies failed to give relief, and he continued very sick through Friday night and until Sunday morning, when I first saw him. At this time there was a good deal of cyanosis, with frequent attacks of choking, respiration labored, and no voice above a whisper. I had a few days before obtained a bottle of Behring's antitoxine, white label. With an ordinary syringe I injected the entire contents of the bottle, making five injections in order to do this with the small syringe at hand. I saw the patient the next day, and found him much improved. He had had no more choking spells, was breathing better, could talk better, had a decreased temperature, and was in every way more comfortable. A general urticaria had broken out, which gave some discomfort, but passed off the second day thereafter. From this time on improvement was uninterrupted, though the hoarseness persisted for a week or more. I have had recently five other cases of true croup, in all of which the patients died, under the usual approved methods of treatment; and so confident did I feel of the diagnosis and probable result in this case that I informed the parents at once that I entertained only the slightest hopes of the child's recovery.

J. B. Stair, M. D.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Twentieth Annual Meeting, held in Baltimore on Tuesday, Wednesday, and Thursday, May 28, 29, and 30, 1895.

(*Continued from page 757.*)

The President, Dr. Matthew D. Mann, of Buffalo, in the Chair.

The Use of Traction and Morcellation in the Removal of Fibroids vs. Hysterectomy.—Dr. Thomas Addis Emmet, of New York, read a paper with this title. He said that the method of treating fibroid tumors by traction and morcellation was not generally known to the profession, although he had practised it for many years. If this procedure was properly carried out, he believed that it would greatly reduce the number of total extirpations. Altogether too large a proportion of women remained invalids after total extirpation of the uterus. The most important fact to determine after locating a uterine tumor was the rapidity of its growth. The more rapid the growth, the more urgent the necessity for extirpation, irrespective of the amount of hæmorrhage. Of course, the age of the patient would have some bearing in deciding as to the necessity of removing the uterus for fibroids. There was an undetermined proportion of women in whom the changes incident to the menopause exerted a favorable influence on the fibroids, but this number was sufficiently large to warrant the expectation that there would be at least some amelioration at this period of life. He could not, therefore, accept the position of those who favored the indiscriminate performance of hysterectomy for fibroid growths.

His method of operating in cases of uterine fibroids, although first performed as long ago as in the winter of 1861–'62, was now coming back to us from abroad as a foreign operation. Ergot was of no value in these cases unless the tumor was so situated that gravity could assist, and unless the canal was kept freely open. He believed that the ergot acted on the muscular structure of the blood-vessels, and so cut off the blood supply to the tumors. For this very reason, this method of treatment had sometimes led to disastrous results. In his method of operating, the traction was to be made chiefly in the form of a lateral twisting movement, counter-pressure being made on the uterus. He regretted very much the abandonment of sponge tents, and expressed the opinion that our future advance would rest largely upon improvements that would admit of the more extended use of these tents.

In conclusion, he said that he believed that nearly all fibroids originated near the uterine canal, and tended to project finally into the uterine cavity.

Dr. W. M. Polk, of New York, opened the discussion. He said that the mortality rate at the present time from total hysterectomy for fibroids might fairly be stated to be only one or two per cent. if the operation was confined to suitable cases. He felt that all present had had patients who had been so immeasurably benefited by hysterectomy that the results fully compensated for the occasional untoward consequences that had been observed to follow this operation. For this reason, it was unfortunate that such a leader in gynæcology as Dr. Emmet should take such an uncompromising position on this subject. The speaker felt that in operating in these cases of uterine fibroids the infrapubic route had been too much neglected, and he believed that in this direction lay the possibility of obtaining successful results at much less cost to the patient.

Dr. J. Montgomery Baldy, of Philadelphia, said that by total hysterectomy the patients were relieved of the symptoms due to the fibroids, although they undoubtedly suffered from the less important symptoms of the menopause. If we were to follow Dr. Emmet's advice and allow these tumors to go on, we should soon find many patients in such a condition that we should be compelled to refuse to operate. His own experience fully confirmed the views expressed by Dr. Gordon.

Dr. Paul F. Mundé, of New York, said that an experience of over twenty years had not led him to believe that it was justifiable to remove a uterine fibroid unless it produced symptoms by its pressure and rapid growth or caused profuse hæmorrhage, or the patient insisted on an operation. If these patients were kept under observation, as they should be, they would not be allowed to reach an "inoperable" stage. On one occasion he had removed through the vagina by morcellation a tumor weighing three pounds, and at another time, by the same method, and at one sitting, thirty-four distinct fibroids.

Dr. Howard A. Kelly, of Baltimore, said he heartily concurred in the views expressed by the last speaker, and he wished to express his entire disapproval of the position taken by Dr. Gordon. He would do total hysterectomy for tumors producing profuse hæmorrhage or which caused severe suffering by their pressure.

Dr. R. Stansbury Sutton, of Pittsburgh, said it was important to determine whether the tumor was a myoma or a fibroma, as there was as much difference between these two varieties of tumors as between an adenoma and an angeioma. No one had ever seen a true fibroma disappear, although doubtless myomata had been observed to do so. The question of the social position of the patient—as to whether or not she must earn her living—also had an important bearing on the question of the most appropriate treatment for the individual case.

Dr. McGonigal, of California, said that if the ovaries and tubes were healthy, and the tumor could be removed, it was our duty to remove it without disturbing the integrity of the appendages. The submucous fibroids could, for the most part, be taken out through the vagina, while the subserous fibroids would ordinarily require to be removed from above.

Dr. A. Palmer Dudley, of New York, said that his experience had not agreed with that of Dr. Emmet regarding the tendency of the majority of submucous fibroids toward the interior of the uterus—he had found that most of them became subperitoneal. Sponge tents were an abomination, not only because of the danger of sepsis when they were carelessly made, but because of the difficulty of removing them. By lateral incisions into the cervix, the cervical canal could be sufficiently dilated without the use of dangerous sponge tents to permit of the removal of tumors weighing between one and three pounds. After the removal of the tumor, the cervix was to be sutured and primary union secured.

Dr. A. J. C. Skene, of Brooklyn, said that he had operated by Dr. Emmet's method over a hundred times, and the only death in this series had occurred in a woman who was already septic at the time of the operation. It was absurd to think of removing all the sexual organs when Dr. Emmet's operation was competent to deal with the condition.

Dr. George J. Engelmann, of St. Louis, said that he had seen a large number of these tumors, yet he knew of no way of distinguishing clinically between myomata and fibromata, or of knowing at the outset that this or that tumor would disappear. He hoped the society would not put itself on record as favoring the performance of hysterectomy for every fibroid tumor of the uterus.

Dr. Montgomery, of Philadelphia, said that tumors projecting into the uterine canal should be removed without disturbing the uterus. The subperitoneal variety might be enucleated and myomectomy performed, thus leaving behind a uterus functionally competent. Many cases demanded hysterectomy simply to enable the patient to earn her living.

Dr. Howard detailed two or three cases in which, while conservative measures had been employed to relieve the profuse bleeding, the tumor had presented at the os, and he had succeeded in extracting it through the vagina by traction and morcellation.

Dr. A. H. Buckmaster, of the University of Virginia, said that, as in many cases it was impossible to make an accurate diagnosis of an intra-uterine fibroid without dilatation of the cervix, such an exploration should invariably precede a resort to hysterectomy.

Dr. J. Riddle Goffe, of New York, said that a very small fibroid in a woman of thirty years might demand hysterectomy, while a tumor of the same size in a person approaching the menopause might not demand such a radical measure. It was the rule for these tumors to diminish or disappear after the menopause.

Dr. Gordon said that he agreed with Dr. Emmet that such tumors as could be removed *per vaginam* should be treated by this method. He could not agree to Dr. Sutton's statement that the choice of the method of treatment should be influenced by the patient's social condition. Lest he might be misunderstood regarding his position on this important subject, he would once more clearly define it. In all cases where a woman found herself an invalid from a fibroid uterus to the extent of seeking the advice of a surgeon, unless such tumor could be successfully and easily removed *per vaginam* either by enucleation or by morcellation, conservative surgery demanded hysterectomy. In his experience he had found the abdominal method the preferable one.

Dr. T. A. Emmet said that for years he had been misrepresented as opposed to the removal of the uterus. There were certain cases in which one could say at once that the uterus should be removed. His main point was that no one should remove the uterus until the canal had been dilated, and a digital exploration had enabled him to form an intelligent opinion of the true position and condition of the fibroid tumor. If the canal was kept dilated and the patient under observation for some time, it would sometimes not be necessary to resort to a radical procedure.

Ligature of the Pedicle with Catgut.—Dr. Archibald MacLaren, of St. Paul, read a paper on this subject. The catgut was prepared by a method of dry sterilization devised by Dr. Beckwith. It was cut into convenient lengths, wrapped in waxed paper to prevent burning, placed in envelopes, and kept in a sterilizer at a temperature of 290° F. for four hours. Numerous culture tests had proved that the catgut was thoroughly sterile, and, as it could be carried around in the pocket in these same envelopes, the method of preparation was particularly convenient. Catgut could be prepared in this way on a large scale by a manufacturer, as there was no danger of its being handled by incompetent persons. The author reported in his paper seventy-three abdominal sections in which nothing but catgut had been used for ligatures. There had been no deaths in this series that could be attributed to the catgut.

Dr. A. P. Dudley said that he had used catgut since 1885 in a great variety of abdominal cases, and had not seen suppuration brought about by its use. He had at last found a firm in New York that he could rely upon to prepare the catgut properly.

Dr. Polk said he had carefully prepared his cases, and had found that those in which he had used silk had done better than those in which catgut had been employed. The catgut had been prepared for him by no less an expert than Dr. Rice, yet it had sometimes given him trouble, and in these cases, strange to say, the bacteriological examination had thrown no light on the cause of the difficulty. Some of the worst catgut that he had ever used had come from the very firm that Dr. Dudley trusted so implicitly.

The President said that he had employed catgut quite extensively for the past ten years, and he could not say that he had ever seen any bad result that could fairly be attributed to it.

Dr. Kelly said that he had been led to abandon catgut during the past two years because of trouble with it. He had found that very fine silk possessed almost all the advantages of catgut without its uncertainties.

(*To be continued.*)

Book Notices.

On Diseases of the Vermiform Appendix. With a Consideration of the Symptoms and Treatment of the Resulting Forms of Peritonitis. A Dissertation presented to the University of Oxford for the Degree of Doctor of Medicine in April, 1894. By Herbert P. Hawkins, M. A., M. D. Oxon., F. R. C. P., Assistant Physician to and Lecturer on Pathology at St. Thomas's Hospital, etc. London and New York: Macmillan & Co., 1895. Pp. vii-139. [Price, $2.25.]

In his introduction to the volume the author reviews the nomenclature of inflammation of the appendix, and concedes that the term "appendicitis" is too firmly established to allow of the substitution of "ecphyaditis"; still, as the symptoms resulting from this inflammation are due solely to the involvement of the peritonæum, he considers "appendicular peritonitis" a preferable term for the affection.

The work of Bichat, Laennec, Ferrall, Mestivier, Dupuytren, Goldbeck, Copland, Burne, Albers, Grisolle, Villermey, Voltz, Rokitansky, Lewis, Wister, Fitz, and others is reviewed and due credit given for the part each has performed in clearing up the subject of disease of the appendix.

The description of the anatomy of the appendix is based in part upon the author's original investigations and largely upon the researches of J. D. Bryant, Fowler, Treves, and Lockwood and Rolleston. The author believes that an extraperitoneal appendix is an anatomical impossibility. In a hundred bodies of all ages taken at random, in cases in which death had occurred from some other cause than disease of the appendix, a microscopical examination of that part showed evidences of past or present disease.

Osler's division of appendicitis into catarrhal and ulcerative is accepted, to which the author considers that a third form, "infective appendicitis," should be added.

The author summarizes the affections of the appendix as:

"1. Catarrhal appendicitis, marked particularly by shedding of the protective epithelium, apt to pass into a chronic condition with thickening of the wall.

"2. The cystic condition of the appendix, whether due to a post-catarrhal stricture or to kinking.

"3. Ulcerative appendicitis due to the presence of a fæcal concretion or a foreign body.

"4. Acute infective inflammation of the wall of the appendix, commonly associated with necrosis of its tissues; this may occur when the mucous membrane shows slight signs of chronic disease, but in the majority of cases it supervenes upon one of the foregoing conditions."

The pathology of each of these conditions is described at length, and the text is illustrated by a number of excellent drawings of microscopical sections. Tubercular, typhoid, and actinomycotic disease of the appendix are but briefly mentioned.

For convenience, appendicular peritonitis is classified as general, local, suppurative, or adhesive, and each of these forms is described clinically, the author citing cases.

In the review of the treatment of appendicitis the author advocates the principles which were laid down by Bull in a paper published in this *Journal* in 1873.

The author believes that routine excision of the appendix at a very early period might save a few persons from general peritonitis, but he doubts whether the resulting gain of life would be large enough to counterbalance the disadvantages of the wholesale surgery which such a practice would entail; and he commends excision of the appendix after a first attack as a better measure than excision during the attack. While the author apparently inclines to the conservative treatment originally advocated by Bull and in vogue in England, he is greatly impressed by the evidence which has been presented by American surgeons, and it is apparent that he is simply waiting for time to substantiate their results in order to give the practice of early operation his sanction. The book is an interesting and useful contribution to the growing literature relating to diseases of the appendix.

The Diseases and Deformities of the Fœtus. An Attempt toward a System of Antenatal Pathology. By J. W. Ballantyne, M. D., F. R. C. P. E., F. R. S. E., Lecturer on Midwifery and Gynæcology, etc., School of Medicine, Edinburgh. With Plates. Volume II. Congenital Diseases of the Subcutaneous Tissue and Skin. Edinburgh: Oliver & Boyd, 1895. Pp. x-264. [Price, $2.]

The author makes a prefatory apology for his two and a half years' delay in the publication of this second volume of his work, due to the unexpected magnitude of the task of gathering together and classifying the numerous contributions which have been made to fœtal pathology during the fifty years which have elapsed since Graetzer's comprehensive work on the same topic. Any one who has undertaken a work of this character can appreciate the difficulty attending such investigations and the reasons for the delay. The author states that the vast amount of material he has collected indicated the impossibility of completing the work in the number of volumes originally selected, unless he considered the remainder of his subject in an imperfect and inadequate way; he has therefore wisely decided to discuss the questions fully and depart from the original limits of the work.

In this volume the consideration of the diseases of the subcutaneous tissue is considered. The first four chapters describe sclerema neonatorum, which is provisionally defined as a grave disease affecting the newborn infant, "characterized by induration, and sometimes by œdema, of the subcutaneous cellular tissue, and by lowering of the body temperature, and due possibly to some trophic lesion of the nervous system." The author considers that œdema neonatorum, a symptom of several morbid states, is often confounded with sclerema neonatorum, and that much confusion has been the consequence. The first recorded case of the disease was in 1718, and during the present century a number of cases have been reported, especially in France and Italy. All the theories of the pathogenesis of sclerema are reviewed, and they demonstrate an unsatisfactory state of our knowledge; the diagnosis, prognosis, and treatment receive due consideration.

A chapter is devoted to subcutaneous abscess in the fœtus, atrophy of the subcutaneous tissue, and dermatolysis.

The remaining eight chapters of this volume are devoted to those idiopathic diseases of the skin in which hyperkeratosis or keratolysis is the leading pathological feature. The author adopts a scheme of classification of congenital skin diseases founded upon the arrangement of cutaneous affections in general which was proposed by Auspitz and modified and elaborated by E. B. Bronson. Attention is directed to the fact that comparatively little has yet been accomplished in explaining the relation of the embryology of the skin to cutaneous diseases; and the author suggests that investigation of the epitrichium in the human and other embryos may throw some light on the mode of origin of fœtal ichthyosis, while the embryology of cutaneous pigment formation and the histological characters of nævi are yet unknown.

This volume maintains the excellent standard of its predecessor, and the work marks an epoch in the literature of the subject of antenatal pathology.

Immunity, Protective Inoculations in Infectious Diseases, and Serum-therapy. By George M. Sternberg, M. D., LL. D., Surgeon-General, United States Army, etc. New York: William Wood & Co., 1895. Pp. vi–3 to 325.

The question of immunity is one of the most interesting problems in medicine, and the result of all the time and care which have been bestowed upon its investigation is summed up by the author of this volume in the conclusion that natural immunity is due to a germicidal substance present in the blood serum which has its origin, chiefly at least, in the leucocytes and is soluble only in an alkaline medium. He holds that local infection is usually resisted by an afflux of leucocytes to the point of invasion, but that phagocytosis is a factor of secondary importance in resisting parasitic invasion. He further holds that general infection, at least in some infectious diseases, is resisted, and in non-fatal cases overcome, by an increase in the number of leucocytes and in the alkalinity of the blood serum which favors solution of the germicidal proteids contained in the multinuclear leucocytes.

Experimental evidence is cited to show that acquired immunity is due to the presence in the blood of some substance capable of neutralizing the toxic products of the particular pathogenic micro-organism against which immunity exists, or of destroying the germ itself, and this substance is called an antitoxine. What the method of production is and what is the exact source of the antitoxine in the animal body is unknown.

The discovery of the anthrax bacillus and Toussaint's publication of his method of producing immunity by protective inoculations of sterilized cultures was followed by Pasteur's discovery of the method of attenuating the virulence of the anthrax bacillus and his method of inoculation with progressively virulent cultures. The history of anthrax as well as of chicken-cholera inoculations is fully narrated.

A chapter is devoted to the history of Ferran's and of Haffkine's methods of producing immunity against cholera by inoculations of sterilized cultures, but the author doubts if they will come into general use as a measure of prophylaxis against a disease that may be prevented by properly applied sanitary measures.

The literature of the antitoxine-serum treatment of diphtheria is briefly reviewed, and attention is directed to the fact that the serum does not destroy the diphtheria bacilli, relieve suffocation due to laryngeal obstruction, or cure acute parenchymatous nephritis due to the toxine produced by the Klebs-Loeffler bacillus.

The literature of protective inoculation for glanders, hog-cholera, hog-erysipelas, rabies, influenza, pleuropneumonia, pneumonia, small-pox, swine-plague, streptococcus infection, symptomatic anthrax, tetanus, tuberculosis, typhoid fever, and yellow fever is reviewed in like manner.

The book is a satisfactory *résumé* of the very greatly scattered literature relating to these interesting subjects, and will be of great convenience to all who wish to know the present status of protective inoculation against any communicable disease.

Index of Medicine. A Manual for the Use of Senior Students and Others. By Seymour Taylor, M. D., Member of the Royal College of Physicians, etc. Philadelphia: Lea Brothers & Co., 1895. Pp. xi–794.

This work is intended to be a handy manual for students preparing for their final examinations in medicine, and is a supplement to the well-known treatises on medicine rather than a text-book. While it was originally intended as a companion to Keetley's *Index of Surgery*, the author found that an alphabetical arrangement of the nomenclature of diseases would entail so many and such complex cross-references that the work would be disjointed and useless; so he abandoned the plan.

The general features of disease are considered in an introductory chapter, which is succeeded by one on general pathology; the consideration of general diseases, including specific fevers, then follows, with subsequent sections on the diseases of the different organs and systems. Each disease is defined, the predisposing and exciting causes are referred to, the symptoms are described, the complications and sequelæ are mentioned, and the diagnosis, prognosis, and treatment are succinctly reviewed. No attempt is made to describe the diseases of the skin or those of the eye, ear, nose, or throat.

The author has accomplished his work with great thoroughness and has omitted no important detail. The volume is consequently an excellent one for the purposes intended.

A Text-book of Physiology. By M. Foster, M. A., M. D., LL. D., F. R. S., Professor of Physiology in the University of Cambridge, etc. Revised and abridged from the Author's *Text-book of Physiology* in Five Volumes. New York and London: Macmillan & Co., 1895. Pp. xlviii–1183. [Price, $5.]

In compliance with the wishes of some influential friends, the author has prepared this abridgment of his five-volume work on physiology, the final volumes of which were recently reviewed in this journal. He has accomplished the curtailment by omitting all histological matter and all discussions which might be considered of a too theoretical nature. What we have said in commendation of the former edition applies to this volume, and the fact that the cost is materially lessened by including the major portion of the text of the several volumes in one book will undoubtedly be appreciated by medical students and others who may wish to possess this admirable work.

Miscellany.

Drifting in Ethics.—At the recent meeting of the American Academy of Medicine Dr. Leartus Conner, of Detroit, read a paper entitled Drifting; Who, How, Whither? We extract the following passages from advance sheets of the *Bulletin of the American Academy of Medicine:*

The first extensive revolt against the written law under consideration occurred in New York. It was preceded by an extremely bitter conflict and caused not a few ripples in the American Medical Association. The result of this revolt was that the friends of the written law established the New York State Medical Association and retained their allegiance to said law, while the opponents captured the old State society, abrogated the written and returned to the unwritten law. To many this seemed a revolutionary proceeding, but when it is remembered that the revolting faction simply returned to the first principles of the medical profession, principles which satisfied the profession during thousands of years, the matter assumes a different aspect. The reformers only abrogated the written law of 1847, preferring the larger individual liberty of the profession anterior to that date. Previous to this, Massachusetts had a contest along similar lines, which resulted in affording sectarians equal rights with regulars and turning popular prejudice against the medical profession.

The Mississippi Valley Medical Association gives its members entire freedom in the matter of consultations. Other medical societies, in various places, have taken similar action, notably in Chicago, Cleveland, etc.

An extensive knowledge of the habits of prominent physicians leads to the conclusion that a fat consultation fee is rarely refused because the attending physician is a sectarian. Personally the writer has often been told by colleagues that he was a fool because he regarded it a matter of gentlemanly honor to obey the spirit and letter of the law of consultations while he retained membership in societies having this law as a condition of membership.

Another marked illustration of this drifting was seen when a committee of its own appointment reported to the American Medical Association that it favored such alteration of the code of ethics as would permit consultations between all physicians properly educated, legally qualified to practise medicine, and of honorable reputation in the place where they lived. When it is remembered that the committee so reporting individually obey both the letter and spirit of the code bearing upon this point, it will be evident that their report indicates a drifting of the medical profession.

This drifting is further seen in that regulars and sectarians work side by side on boards of health, State and local, and on boards of other State institutions. This very imperfect sketch shows that, whether we like it or not, the fact can not be disguised that the professional relationships of regulars and irregulars are, at many points, multiplying and extending. If, finally, through these relationships the sectarians shall be swallowed up by the medical profession, history will simply repeat itself. Within the memory of living physicians specialists of all sorts were ranked as "irregular," and with them were classed "practitioners of massage," "electro-therapeutics," "hydro-therapeutics," etc. Now work in these fields is regarded as the most honorable, and the workers receive the largest returns in money, honor, and fame.

Whither does this drifting tend? The history of the past and the logic of existing social forces point to but one result—viz., the absorption of all ideas that are true and helpful, and all persons who are honest and of good report, into the medical profession. To this end larger liberty will be accorded the individual physician. He will be permitted to choose his professional associates from among those whom he knows to be properly educated, legally qualified to practise medicine where they reside, and of good report. Qualifications other than these will be regarded as purely local in their necessity and temporary in their existence, and to be controlled entirely by the individual physician. It were wiser to object to consultation with a physician because of known ignorance, lack of skill, dishonest methods, or disreputable character, than because of his sectarian name. Objection on the first ground is readily understood by any layman, but objection on the second fails to commend itself to most persons, and not infrequently brings the objecting physician into discredit.

Two Cases of Coma Induced by the Application of Carbolic-acid Compresses to the Skin.—In the *Lancet* for June 1st Mr. R. Clement Lucas and Mr. W. Arbuthnot Lane, of London, report the following cases which have recently come under their observation in Guy's Hospital. They appeared to the authors to be of such rarity and importance as to justify their early publication, and they published them chiefly with the object of rendering their experience of service to others. It had long been their practice to apply a compress of lint soaked in a five-per-cent. solution of carbolic acid in water for a variable time before an operation. Many hundreds of patients must thus have been prepared, but with the exception of these two the authors know of none that have presented symptoms of such serious import:

A boy, aged fifteen years, was admitted into Job Ward, Guy's Hospital, on August 27, 1894, under the care of Mr. R. Clement Lucas. In 1891, during convalescence from typhoid fever, he suffered acute pain in both legs and in the right hip. Abscesses formed about the right hip, and ankylosis of this joint followed. Considerable thickening of both femora near the knees was also noticed. He had on two previous occasions, during 1892 and 1893, been under Mr. Lucas's care for the treatment of sinuses connected with diseased bone. On this occasion there were three small sinuses remaining in the right thigh, and thickening of both femora. At noon a carbolic compress was applied over the right thigh to prepare him for an operation in the evening. The operation, however, had to be postponed. In the evening he was very sick, and at 2.30 A. M. on the following morning the nurse's attention was drawn to him by hearing his breathing stertorous, and on going to him found that he was insensible. She immediately sent for the house surgeon, Mr. G. Lawrence, who found him lying on his back with his head turned to the left. When first discovered he was found to have vomited on the pillow. His pulse could not be counted at the wrist, but by the heart it was 200. The pupils were moderately small, reacting slightly to light. His breathing was very stertorous and complicated by much mucus in the throat. He was in a profuse perspiration all over. There was no corneal reflex. His limbs dropped loosely when lifted, but sharp stimuli excited slight movements, especially in the arms. He had not passed urine. After a time he began to moan with each expiration, and continued steadily to do so, and seemed to get gradually lower. Brandy and strychnine were given at once without producing much effect. Hot-water bottles were put around him. He gradually came round to a state of semi-perception of stimuli, moving his arms slowly and aimlessly and making less noise. He appeared unable to clear his throat of mucus, and the cry at the end of expiration seemed to indicate pain. Later, he became more quiet, and his pulse was counted at 150. Pinching his limbs excited cries of pain, but not much movement. The pulse remained very feeble, and cold perspiration continued. The breathing was quiet, but rattling. He was apparently asleep, but pinching did not rouse him. At 10 A. M. he was still comatose and could not be roused to answer questions. He was sick and weak. The pulse was 120 and feeble. About half an hour later he regained partial consciousness, but was heavy and stupid all day. The urine passed was found to be very dark in color from absorption of carbolic acid. On August 29th the patient still felt sick, and vomiting occurred now and again. He was very thirsty. The pulse was 126 and the temperature 101·8° F. His breathing was quiet. In the evening his temperature rose to 103·4°. On August 30th his temperature at 10 A. M. had fallen to 100·8°. Sickness occurred occasionally. On August 31st the sickness ceased. The patient had a hectic flush on each cheek. He felt much better. The temperature was 99·6°. On September 1st he was feeling quite well. On September 3d it was again arranged to operate, and a short time before some five-per-cent. solution of carbolic acid was applied on lint to the thigh. Soon he was noticed to be sick and shivering, and his skin was bathed in perspiration. His temperature was only 95° and his pulse scarcely perceptible. He was stupid and answered questions with difficulty. The operation was in consequence postponed, the compresses removed, and the skin of the thigh thoroughly washed with warm water. Subsequently for two days his urine was dark from the absorption of carbolic acid.

A boy, aged six years and a half, was admitted under the care of Mr. Lane on January 30, 1895, suffering from a swelling in the right iliac fossa, which it was proposed to explore on the following day. The dresser applied to the skin over and in the vicinity of the mass a compress moistened with carbolic lotion (1 in 20). This was done at 12.20 P. M. At 1.30 P. M., after it had been in position for an hour and ten minutes, the sister of the ward heard the child groaning, and on examining him was so alarmed that she sent at once for the house surgeon. On his arrival a few minutes later he found the boy pale, collapsed, and comatose. There was marked dyspnœa, with convulsive twitchings of the eyelids and limbs. The pulse was 130, feeble, and intermittent; the respiration was 72, and the temperature 97° F. Ether and atropine were injected hypodermically and brandy given by the rectum. The patient was wrapped in blankets and hot bottles were applied. The interrupted current was also used. After this his condition became somewhat less alarming, his pulse improving in character and his respiration being less labored. At 3 P. M. the pulse was 150 and the respiration 72. The eyelids still twitched and the tetanic contractions of the muscles of the forearm and hand continued. The pupils were dilated and reacted slightly to light, the face was flushed, the lips less livid, and the body was covered by a profuse perspiration. The skin at this time showed no sign of having been irritated by the carbolic lotion. At 4.30 P. M. the pulse was 146, much stronger, and the respiration was 72. The twitching of the eyelids had ceased, together with the difficulty of breathing, though the respirations were still abnormally shallow and rapid. The patient had been perspiring freely since the last observation. At 6 P. M. the condition of the pulse and respiration did not differ from that observed at 4.30 P. M. The patient was still perspiring, and he screamed a good deal and appeared to be regaining consciousness. He vomited some dark fluid, which appeared to be imperfectly digested beef tea, after which he seemed much relieved. At 7.30 P. M. the patient was quite conscious and talked quite rationally. The pulse was 120, full and strong, the respiration 32, and the temperature 98·4°. He had vomited several times since the last observation. He passed some urine which was very dark green in color, distinctly acid, having a slight deposit of urates, but containing neither albumin nor sugar. It gave the ordinary reactions for carbolic acid and its products in urine. He continued to vomit at intervals until the afternoon of the next day. He passed some more urine in the morning of the same character as the last. The respirations fell in frequency to 24 during the night, his pulse not changing. On February 1st, at 2 A. M., his temperature was 99·2°, and at 6 A. M. it was 98·6°. Although on February 2d the child seemed fairly comfortable except for a little exhaustion, possibly consequent on the vomiting, yet it was several days before he was restored to his original condition of health. It would seem probable that, but for the prompt action of the house surgeon, Mr. D. M. Beddoe, the child's condition might have become much more serious than it did.

With regard to the treatment, says Mr. Lucas, the first indication is to thoroughly wash the skin to which the carbolic lotion has been applied to prevent any further absorption, and next to treat the collapse. Hot bottles and warm blankets to the surface, with warm brandy enemata and the subcutaneous injection of ether, are the best means for this purpose. Strychnine or atropine may also be of service. In spite of the alarming and persistent nature of the symptoms, says Mr. Lucas, their experience would lead them to give a favorable prognosis if the cause were recognized sufficiently and means at once taken to prevent any further absorption. That the absorption was by the skin in both cases, there can be no doubt, he says, for in the first case there were only three small sinuses open and in the second case the skin was unbroken.

The Analysis of Voluntary Muscular Movements by Certain New Instruments.—In No. 345 of the *Proceedings of the Royal Society* there is an abstract of an article on this subject by Dr. William R. Jack, in which the writer says that the object of this investigation was to determine the greatest speed of which the voluntary muscular movements were capable, and how far the speed was influenced by age and education. Twenty-three normal and two pathological cases were examined. The normal cases were divided into three classes: persons of special manual education, those of average manual education, and those of inferior manual education, in whom the hands were accustomed only to coarse movements and in whom the fingers had had no special training. The ages varied from eighteen to sixty-two. While the tracings were being made the hand rested on a little table at the height of the recording slide. It was found that the velocity of the more complicated movements could be increased to some extent by practice. Full details of the velocities attained in each case are given in the original essay; in this abstract, says the writer, only a statement of results attained will be made.

Beginning with the influence of training upon the velocity of the movements, the pen movement was first studied, and the rate at which a distance of three centimetres in the middle of the slide was traversed was taken as the standard of comparison. Unfortunately, no tracings of this movement were taken from musicians, but, on comparing the average of the tracings derived from those of average and those of inferior manual education, the following conclusions were arrived at:

1. That in those of inferior manual education (whose two hands were both untrained) the velocity is equal in both hands (3·4″/117 for the right and 3·5″/117 for the left hand).

2. That in those of average manual education the velocity

is greater in the right hand, which has been trained (as in writing), than in the left, which has not (2·9″/117 for the right and 3·6″/117 for the left hand), an exception being found in the case of the author, both of whose hands had been pretty equally trained, in which case both had the same velocity (3″/117).

3. That the velocity is greater in the right hand of those of average education than in the right hand of those of inferior education.

4. That the velocity in the left hand (which has been little trained) of those of average education is practically identical with that in the left hand of those of inferior education.

The velocity of contraction of a single finger was next examined, with the following results:

1. That the velocity is equal, or nearly so (2″/117), in the first and second fingers, and is greater than that in the third and fourth, which have also a nearly equal velocity. This may be due to the special arrangement of the tendon of the extensor communis digitorum for the third finger, and for the fourth to the awkward position in which it was placed.

2. The velocity of each finger is practically identical for the two hands.

3. That the velocity of the finger movements is not appreciably affected by manual training. The most rapid single contraction of the fingers of a trained pianist is very slightly, or not at all, faster than that of a workingman.

4. The velocity of movements of flexion is on the average slightly greater than that of movements of extension, although in two of the eight cases examined the velocities were identical.

5. The velocity of the finger movements, as a whole, is greater than that of the pen movements.

In examining the more complicated movements of writing it was found—

1. That the average velocity is practically the same in musicians and in those of average education, their training in this regard being nearly equal.

2. That the velocity in the untrained working classes is much less than in the two former.

3. That the velocity in all classes is much less than in the pen movements.

4. That the curved parts of letters and figures are more slowly formed than the rectilinear parts, and that the velocity of a curve varies, roughly speaking, with the radius of curvature.

The difference, then, between education and the want of it is greatest in writing, less in pen movements, and scarcely noticeable in the simple finger movement. And the average velocity for all classes is least in writing, much greater in pen movements, and greatest in finger movements. The velocity, therefore, diminishes and the difference between the various classes increases as the movements become more complex. The more nearly they approach to a simple muscular contraction the less is the difference noticeable; though it would, doubtless, be found that the musician is able to repeat a series of simple muscular contractions much more rapidly than one with untrained fingers.

The influence of age upon the velocity of the movements was next investigated, and it was found, with regard to writing—

1. That the velocity of the movements of writing becomes slower with advancing age.

2. That it is greatest between the ages of twenty and twenty-nine, and decreases with every decade thereafter.

3. That this decrease is greater in the uneducated than the educated.

With regard to pen movements it was found—

1. That the decrease in velocity is less marked than in the case of writing.

2. That the velocity is greatest between the ages of twenty and twenty-nine.

3. That the difference in the rate of decrease between the educated and uneducated classes is not so marked as in the case of writing.

With regard to finger movements, it was found that they retained nearly the same velocity for all classes between the ages of twenty and fifty, and that in the case of a man over that age, a laborer, there was a decided decrease. In the two pathological cases, one of lateral sclerosis in a man of forty-one and one of tremor of the hands following syphilis, in a man of fifty, similar results were obtained. The complex movements of writing were most seriously retarded, the pen movements less, and the finger movements least of all.

It appears then, says the writer, that as a movement increases in complexity, and involves in its performance the associated action of a greater number of muscles, its velocity diminishes, and the influence of education becomes more distinctly manifest. And as complex movements require a longer education for their rapid performance, so they appear to become sooner defective than the simpler movements. For it is in writing that the retarding effect of age is most apparent, while it is least so in the finger movement.

In the second part of the investigation it was desired to obtain tracings from a larger series of contractions than could be registered upon a microscopic slide. For this purpose an instrument was adopted consisting of a long steel bar held firmly in an iron clip, and carrying in a clamp, attached to one end, a smoked-glass plate six inches square. It was set in motion by an electro-magnet through which the current passed from a storage battery, and, as determined by the chronograph, it made fifty-four double vibrations a second. At Professor McKendrick's suggestion it was determined to investigate with this instrument the phenomena of fatigue. For this purpose Mosso's ergograph was adapted to the instrument, the recording part of which could be pulled on rails slowly away from under the registering lever, which worked up and down with the movement of the weighted finger. Thus a series of contractions and relaxations, divided by the oscillations of the bar into fifty-fourths of a second, was registered on each plate. The plate could be taken out and a new one substituted beneath the lever without stopping the movement of the finger. A key was interposed in the circuit to shut off the current while the plates were being changed.

Four normal and two pathological cases were investigated, series of tracings being taken with a half-kilogramme, a one-kilogramme, and a two-kilogramme weight. They show, says the writer, in a very striking manner the diminution in height of the contraction, and the coincident diminution in its velocity, due to fatigue.

The measurements which were taken of the rates of velocity at different parts of the tracings afford somewhat varying results, and the number of cases is too few for any definite conclusions to be drawn from them. But it would appear that while the diminution is gradual and uniform in the case of small weights, in that of larger weights it occurs, as a rule, more rapidly, and that the rate of diminution does not remain the same throughout the tracing.

The Treatment of Croup by Calomel Sublimations.—This method of treatment is described by Dr. Henry Fruitnight in the *Archives of Pœdiatrics* for June. As to its *rationale* he does not attempt to express an opinion. The treatment should be instituted as soon as the symptoms of croup appear. From five to twenty grains of calomel are used at intervals varying from half an hour to three hours, according to the urgency of the symptoms. In the average case the proper dose is fifteen grains, repeated hourly. The child is placed in a tent where the calomel is slowly sublimed. The treatment is continued from one or two days to ten or twelve days. The unfavorable symptoms which must be guarded against are salivation, diarrhœa, and depression accompanied by anæmia. The author reports but one case of salivation among a large number of cases. Diarrhœa also is rare, and depression is readily overcome by stimulants. The sublimations are not discontinued after intubation. While the author does not make extravagant assertions for the treatment, he is fully convinced that many children are rescued from death by croup by its use, and believes that he can never be induced to discard so potent and efficacious a therapeutic measure. The doses employed and the frequency of their application are somewhat greater than those advised by some authors. The efficacy of the treatment has come to be almost universally recognized in New York.

What is Croup?—In an article under this title, Dr. Henry Dessau, in the same journal, attempts to define the exact meaning of the term croup. Several disorders which vary widely in their nature are called croup. Laryngismus stridulus and catarrhal laryngitis are the commonest of these. The first is practically a manifestation of rickets and is in no sense croup. It often appears as the holding-breath spell of rickety infants, in which the face becomes livid, with perhaps convulsive twitching of the muscles of the face, followed by a loud crowing inspiration. Catarrhal laryngitis, or false croup, appears in two forms, the spasmodic and the simple. The spasmodic comes on suddenly at night, awaking the child out of sleep, and rarely occurs in children under a year old. Its most prominent features are a loud metallic ringing quality of the cough and alarming dyspnœa. The simple form of laryngitis develops gradually with hoarseness and a ringing tone of the cough. It may begin during the day, but becomes more marked at night. There is usually elevation of temperature, and frequently there are attacks of difficult breathing. The voice is never completely lost. It is very difficult to distinguish this form of laryngitis from true croup. When the germs of diphtheria or pseudo-diphtheria have been engrafted upon such a laryngitis, the case presents many difficulties in diagnosis. According to a recent report of the board of health of New York, out of two hundred and eighty-six cases of so-called membranous croup, eighty per cent. showed the germs of true diphtheria, fourteen per cent. showed those of pseudo-diphtheria, and six per cent. were doubtful. In true croup the onset is usually insidious. The voice, at first hoarse, is gradually lost. The cough, at first metallic, soon becomes smothered. Attacks of dyspnœa begin at long intervals, but the intervals soon become shorter and irrespective of day or night. All the signs are progressive in character. The diagnosis should be made if possible by bacterial examination. The term croup should only be applied to a pathological stenosis or narrowing of the calibre of the larynx from the deposit of an exudation or false membrane upon its mucous surface. It is due to diphtheria in such a proportion of cases that every case should be regarded as one of diphtheria unless definitely proved to be something else.

The Eighth Edition of Martindale's Extra Pharmacopœia.—In a review of this book in the June number of the *American Journal of Pharmacy* Mr. Joseph W. England says that, while it is largely based on the *British Pharmacopœia* and the procedures of British pharmaceutical practice, it refers as well to the products and preparations of the *United States Pharmacopœia*. The work has a national reputation in Great Britain, and presents many features of interest to all pharmacists.

With regard to some of the formulas, says Mr. England, reference is made on page 123 to the "A. C. E. anæsthetic mixture" of alcohol (sp. gr. 0·838) one volume, chloroform (sp. gr. 1·497) two volumes, and ether (sp. gr. 0·735) three volumes, that found favor in this country some years ago. This mixture has been condemned, he says, by American surgeons, on the ground that its rate of volatilization is unequal, so that the anæsthetized patient is subjected to varying vapors, and not to an anæsthetizing vapor of uniform composition. Mr. Martindale has recognized this fault, and maintains that it may be obviated by using the following formula: Absolute alcohol (sp. gr. 0·795) one volume, chloroform (sp. gr. 1·497) two volumes, and ether (sp. gr. 0·720) three volumes. He presents the results of experiments in support of this statement, which show a practically uniform rate of evaporation. The mixture has a specific gravity of about 1·01. Prepared with *United States Pharmacopœia* absolute alcohol, chloroform, and ether, the mixture would have a slightly lower gravity.

It is singular, says the writer, to note the influence that water in ether has of retarding anæsthesia. He has frequently observed that the higher the specific gravity of an ether, the greater the amount of it that was required to produce anæsthesia. To a degree, the higher the gravity of ether, the more water it contains, and it seems reasonable to believe that it is the presence of water in ether and not so much the alcohol that retards anæsthetization, or rather renders an increased amount of ether necessary to produce it. That this is Mr. Martindale's opinion also, is evident from his improved formula for the "A. C. E. mixture," in which he seeks to minimize, as far as practicable, the percentage of water present, by using absolute alcohol, and an ether stronger than that contained in the original formula. This "A. C. E. mixture" is alleged to be safer than chloroform and quicker in action than ether, though not so quick as chloroform, and the improved formula certainly deserves a thorough trial.

If petrolatum possesses therapeutic virtues—which, apart from its being demulcent to the mucous membrane of the alimentary canal, is doubtful—a formula for an emulsion of it with hypophosphites is given on page 331, as follows: Soft petrolatum, five ounces (av.); powdered acacia, 2·5 ounces (av.).

Mix and add four fluidounces of water. Dissolve a hundred and twenty grains each of sodium hypophosphite and calcium hypophosphite in six fluidounces of water. Add to the above with constant trituration, and then add a sufficient quantity of water to measure fifteen fluidounces. Dose, from one to four teaspoonfuls.

In the making of tincture of strophanthus, Mr. Martindale gives preference to Fraser's process as improved upon by himself (*i. e.*, exhausting the ground and dried seeds with ether, drying and exhausting with alcohol), to the *United States Pharmacopœia* process of simply percolating with a diluted alcoholic menstruum (alcohol 650 c. c. to water 350 c. c.) without prior exhaustion with ether. In the writer's experience, Mr. Martindale's process is decidedly the better of the two. It may require a longer time than the present *United States Pharmacopœia* process; but the final product is surer of representing all the therapeutically active principles of the drug.

Mr. Martindale refers interestingly to terebene on page 410, and says that, chemically, it consists of camphene, cymene, borneol, and terpilene, the last-named of which is said to be the active or toxic constituent of terebene.

The *United States Pharmacopœia* for 1890 states that terebene consists chiefly of pinene, and contains not more than very small proportions of terpinene and dipentene. Sadtler and Trimble, in their new text-book on *Chemistry*, on page 781, quote Dr. F. B. Power as stating that it consists chiefly of the hydrocarbons dipentene and terpinene, with some cymene and camphene. For the internal administration of terebene, other than inhalations of vaporized terebene, Mr. Martindale recommends the conventional method of giving the terebene in sugar. A much better way, in the writer's opinion, is to admix the terebene with an equal volume of olive oil, and emulsify with powdered acacia, sugar, and water, flavoring with oil of gaultheria; each teaspoonful to contain five minims of terebene.

The formula is given on page 224 for the French product glycero-alcohol, as follows: Glycerin, 333; distilled water, 146; and alcohol, a sufficient quantity to measure 1,000. It has a specific gravity of about 1. It is much used in Paris as a solvent of alkaloids and other proximate principles; it keeps indefinitely and does not readily evaporate. It could doubtless be often used with advantage by American pharmacists for the making of standard solutions of alkaloids, etc.

Paraldehyde, on page 55, is recommended to be given in diluted syrup or almond mixture. A better method is to mix it with an equal volume of olive oil, and emulsify with powdered acacia, sugar, and water, flavoring with oil of gaultheria. Mr. England is disposed to question the statement made on page 56 that paraldehyde is probably the *principal* therapeutic agent in *spiritus ætheris nitrosi* B. P. It may be an important constituent, he says, but surely the contained ethyl nitrite is of equal or greater importance. It is known that paraldehyde has absolutely no diaphoretic action on the human economy, and from this fact it is very evident that the diaphoretic action of spirits of nitrous ether must be due to some constituent other than paraldehyde, and this is most probably ethyl nitrite.

For the making of "creosote pills," Mr. Martindale recommends, on page 180, the following formula: Creosote, two fluidrachms; powdered soap, a hundred and twenty grains.

Place the creosote in a one-ounce, wide-mouth, stoppered bottle; add the soap and mix well. Then digest on a water bath until they combine. Each two grains of the mass will contain, practically, one minim of the creosote. This mass can be combined with other ingredients without decomposition, as occasion requires.

The writer has used the following formula: Creosote, twelve minims; powdered licorice root, eighteen grains.

Triturate well until the licorice root has absorbed the creosote, and then add: Powdered soap, one grain; powdered acacia, six grains.

Make up into a mass with an excipient of glycerin and syrupy glucose (one part by volume of the former to four parts by volume of the latter). Divide into twelve pills and inclose in gelatin capsules.

The licorice root absorbs the creosote, the soap—small in quantity as it is—softens the fibrous mixture, the acacia gives adhesiveness, while the excipient helps to form a plastic, non-friable mass readily made into pills. Encapsulating in gelatin is essential to mask the creosote odor.

The objection is sometimes made to creosote pills, says Mr. England, that only small quantities of creosote can be given in this way. Where relatively large quantities of creosote are desired to be given an excellent method is to admix the creosote with twice its volume of olive oil and inclose in gelatin capsules. The use of the fixed oil in this connection, he says, is not objectionable. In point of fact, there are reasons for believing that its presence is of value in deminishing the causticity of creosote upon the gastric mucous membrane and in promoting its absorption.

The Treatment of Burns with Thiol.—In the May number of *La Clinique* there is an article on this subject in which the writer says that according to A. Bilder, of Berlin, thiol is one of the best applications in the treatment of burns of all degrees. Bilder first washes the burned part with a weak solution of corrosive sublimate and then removes the cuticle hanging loose as the remnants of ruptured blisters, taking care not to touch these of which the walls are still intact. After dusting the burn with powdered boric acid, the entire surface of the burned region and the healthy skin around it are painted with a solution of equal parts of thiol and water; finally, a layer of greased cotton is laid on the burn and kept in place with a bandage. Thiol allays the pain very rapidly and arrests the hyperæmia of the skin. Part of the contents of the blisters is absorbed and the rest becomes dry in the form of semi-transparent, amber-colored crusts which are easily detached, leaving a completely healthy skin. At the end of eight days the dressing is removed. The rapidity of the cure varies according to the degree of the burn. In burns of the first and second degrees it is generally rapid. In those of the third degree the cicatrices which are formed under the dressing of thiol are smooth and show no tendency to retraction.

Grippe in the Puerperal Condition.—At a recent meeting of the *Congrès de la Société obstétricale* de France, a report of which appears in the *Progrès médical* for May 25th, M. Queirel, of Marseilles, reported thirty-five cases of grippe occurring in puerperal women. In all the cases there had been pulmonary localizations, and in two broncho-pneumonia. No deaths had occurred. Eleven of the women had been confined before term and the others at term. The membranes had been ruptured four times during the efforts made in coughing. One patient, who had undergone symphysiotomy, had been attacked with pneumonia during her lying in; another had had gastric symptoms and her child had had erysipelas. There had not been a single case of suppuration. M. Queirel had used corrosive sublimate for vaginal and uterine injections, but he did not practise the uterine injections unless the temperature rose. Perhaps it was owing to this procedure that no cases of infection had occurred.

M. Gaulard had also had an epidemic of grippe in his clinic at Lille, but, he said, he had taken no particular care in regard to the genital organs; he had simply used antipyrine and in three or four days the patients had recovered. M. Queirel said that he had observed particular syndromes. In certain cases there had seemed to be an outbreak of small-pox; in others, angina, etc., but there had never been anything observed affecting the genital organs.

The Inundated Districts in France.—The *Progrès médical* for May 18th says that the sub-commissioners of the board of health who visited the localities where the recent catastrophe at Bouzey occurred reported that hygienic measures had been well and rapidly executed and that, at present, there was no danger to the public health. However, the board, having learned that several cases of sickness had occurred at Bouzey among those who had been so imprudent as to use the water from polluted wells, urged the necessity of absolutely forbidding the use of water from any of these wells. The prefect of the Department of the Vosges went to Nomexy, where an epidemic was feared in consequence of the choked-up condition of the region and of the houses, in order to give an accurate account of the place and of the execution of the work of improving the sanitary condition. He afterward visited Bouzey, Chaumousey, Sanchey, Uxegney, and Domèvre, and everywhere he found that hygienic measures had been rigorously carried out.

Original Communications.

THE KNEE-JERK IN DIAGNOSIS.*

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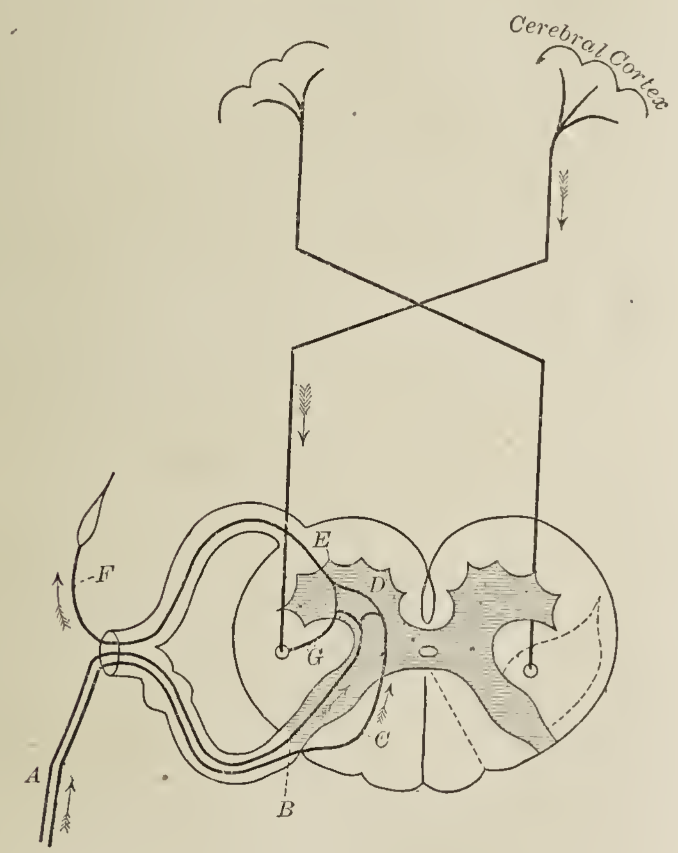
It was at first my intention to read a short paper on some of the more prominent objective signs of structural disease of the nervous system, but as the time allotted to me is necessarily limited, I have concluded to confine my remarks to a consideration of the knee-jerk and its significance in diagnosis. As our knowledge upon this apparently circumscribed topic has materially increased within the last few years, and as numerous valuable and interesting clinical observations have been added to our store of information, it would hardly be practicable, under existing conditions, to even attempt to enter into an elaborate study of this subject. I will therefore be as brief as is consistent with lucidity, and only dwell on some of the more common factors to be considered, and trust that the discussion may call forth some of the points that may have been omitted.

The accompanying diagram represents a transverse section of a segment in the lumbar region of the spinal cord, and will serve to elucidate the text.



Primarily, the knee-jerk depends on the integrity of the reflex arc situated in the third or fourth lumbar segment. When the quadriceps tendon is struck, the sensory impression is carried backward through the sensory nerve fibres A to the posterior nerve roots B, thence traversing the posterior column C to the multipolar ganglion cell, D in the anterior horn of gray matter. This constitutes the sensory portion of the arc. The impulse is then projected forward through the anterior nerve roots E and the anterior crural nerve F to the quadriceps, thus producing a contraction in this muscle. This constitutes the motor portion of the arc. The reflex centre in the cord receives fibers G from the cerebro-spinal portion of the motor tract, which serve to control its activity. It is assumed that these fibers originate in the cerebral cortex.

While this description should not be accepted as anatomically accurate, yet for all practical clinical purposes this subdivision of the reflex arc and its inhibitory fibres will prove satisfactory as a working hypothesis.

Method of Eliciting the Knee-jerk.—The ordinary and customary method of testing the knee-jerk while the person's legs are crossed may suffice when the knee-jerks are quite active. Under such conditions the position of the limbs is immaterial. The utmost care, however, is necessary when there is any doubt as to the character of the reaction. Under such circumstances it is advisable to place the patient sitting upon a high chair or upon the edge of a table, so that the feet are free from the floor. As a rule, both knee-jerks should be tested. Occasionally much patience is required in satisfactorily determining whether the knee-jerk is present or absent. In many instances the anticipation of the tap upon the patellar tendon occasions involuntary rigidity of the flexor group of muscles, thus bringing to bear sufficient opposing force to overcome the action of the quadriceps. Before and during the examination the patient should close his eyes, and his attention should be diverted from the purpose of the examiner either by conversation or rapid interrogation. Or he may be directed to make some muscular effort with the hands, such as forcibly interlocking the fingers or elevating the arms, etc. With this object in view any other similar expedient may be resorted to that suggests itself to the examiner. It is never safe to say that the knee-jerk is absent unless repeated and varied tests have been made with the clothing removed. The well-established principle that faulty methods in examination, like false premises in reasoning, result in erroneous conclusions, finds daily exemplification in the investigation just mentioned.

Not long ago, during a pleasant conversation with a well-known practitioner, the subject of the diagnostic importance (or, as he preferred to term it, the unimportance) of the knee-jerk was touched upon. His conclusions were, that its absence indicated locomotor ataxy, and its exaggeration, sclerosis of the lateral columns of the cord. This is a fair illustration of the limited knowledge upon this subject possessed by a large majority of physicians throughout the country.

While confining my remarks to this particular symptom, let me state at the outset that the presence, exaggeration, or absence of the knee-jerk in itself is not sufficient for a diagnosis without corroborative signs. In other words, its exaggeration or absence *per se* is not pathognomonic of any special type of disease.

The absence of the knee-jerk is of more positive value than its exaggeration. Any interruption or interference with the integrity of the reflex arc will abolish it. The obstruction may be either in the sensory or motor portion.

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* Read at the meeting of the Harlem Medical Association, May 1, 1895.

1. Thus, a lesion which involves the posterior roots of the posterior columns in the region of the second, third, or fourth lumbar segments, such as tabes or transverse myelitis, produces a break in the sensory path, and the knee-jerk is abolished. These are the only lesions in the sensory tract of the cord that are known to cause a loss of the knee-jerk.

2. A lesion involving the *motor* portion of the reflex arc, such as acute or chronic anterior poliomyelitis, or multiple or isolated peripheral neuritis affecting the anterior crural nerves, will also abolish the knee-jerk.

The perplexing question naturally arises, By what method are we to determine the cause of the loss of the knee-jerk in an individual case? Excluding the very remote possibility of its being a physiological anomaly, we interpret its significance only after a careful study of its association with other symptoms. I have tested for the knee-jerk nearly one thousand children over three years of age, and found it present in every case. In fifteen its presence was somewhat doubtful at first, but was ultimately demonstrable.

1. *Loss of the knee-jerk associated with* severe, sharp, circumscribed, paroxysmal pains in the lower extremities; incontinence or slowness in emptying the bladder, with preservation of muscular resistance, with or without incoordination, with or without objective sensory symptoms, is indicative of organic changes in the lumbar segments of the cord, such as tabetic degeneration or a lesion of their posterior nerve roots.

2. *Loss of the knee-jerk associated with* diminished muscular resistance or evident paresis or paralysis in the lower extremities, pain in the course of nerve trunks with tenderness on pressure, some atrophy and quantitative decrease in faradaic irritability, with or without objective sensory disturbances, and the absence of bladder symptoms, is a clinical picture of multiple neuritis.

3. *Loss of the knee-jerk* with flaccid paralysis, atrophy, and loss of faradaic reaction in the quadriceps, and the absence of all sensory symptoms, indicates a poliomyelitis in the lumbar portion of the cord upon the same side.

Now, do not let us assume that the knee-jerk is completely absent in all cases of tabes. In some, the degeneration may begin in the cervico-dorsal portion of the cord, and, while symptoms such as ataxia, fulgurating pains, anæsthesia, and paræsthesia are limited to the upper extremities, the knee-jerks may remain well marked until later in the disease, when the pathological process attacks the lumbar cord. I have seen a number of cases of tabes where the absent knee-jerk was unilateral. In one instance the patient was a man fifty years of age, who suffered extremely from the frequent and severe paroxysms of pain. He was under my observation nearly six years, but the knee-jerk persisted on one side. He died suddenly of cerebral hæmorrhage. No autopsy was obtained. The knee-jerk has been known to reappear in tabetics during alcoholic intoxication, and upon the same side after a hemiplegia from cerebral hæmorrhage. This phenomenon can only be explained on the assumption that the sensory fibres which have remained intact regain their conductivity when released from the inhibitory cerebral influence. As a general rule, the knee-jerk does not disappear so long as there exist in the reflex paths a certain number of healthy muscle and nerve elements. Therefore, in certain forms of myelitis, neuritis, or myositis, and in the various muscle atrophies of spinal or peripheral origin, the knee-jerk may persist for a long time, although the efficiency of the muscle is considerably diminished. On the other hand, in all lesions which affect the nerves in their totality, such as atrophy of the greater part of the nerve or muscle fibres, the knee-jerk is abolished.

A very remarkable case of tabes was reported by Eichhorst, where the knee-jerk was lost late in the disease. The patient died of apoplexy. The autopsy revealed that the upper portion of the cord was typical of tabes. The lower dorsal and lumbar portions were normal. The loss was explained by demonstrable extensive degenerative neuritis of both anterior crural nerves, which is often a late complication of tabes.

In all of the cases reported by Bastian, Hughlings Jackson, and others, where the cord was completely destroyed in its transverse diameter by a fracture-dislocation, or otherwise, the knee-jerk has never returned. Jackson thinks this is due to a loss of "cerebellar influx." These cases all support the rule that in a complete transverse lesion of the cord the knee-jerk will be lost at once. In all cases of transverse myelitis, spinal-cord hæmorrhages, and traumatisms of the cord, if we observe an abolition of the knee-jerks an unfavorable prognosis should be given. The same loss may be produced, however, by extreme pressure upon the cord without destruction. In irritative lesions of the cerebellum (especially tumor) the knee-jerk is either absent or diminished at some period of the disease. In some patients it may disappear for a few weeks and then return. In cases of chronic organic intracranial disease, in which indications of the position of the lesion are absent, the occurrence of this symptom suggests a cerebellar process.

The changes in the unilateral reflexes permit of the diagnosis of a one-sided lesion with the greatest certainty, while an involvement of the reflexes on both sides (excluding polyneuritis) always indicates an affection of the central nervous system in its totality and an unfavorable prognosis.

It has been contended that in diphtheria the knee-jerk is frequently absent in the early period of the disease. Its loss was supposed to be due to a multiple neuritis, but this view can not be accepted as conclusive. From a report of a hundred cases in children over four years of age it was absent in sixty one. In these there was evidence of neuritis in thirty-four. The writer has, however, personally studied the condition of the knee-jerk in seventy-five cases on the second and third day of the disease, and its presence was clearly demonstrable in every case. Of course, it is well known that in a certain proportion of these patients a complication or sequel may occur in the form of a multiple neuritis involving both anterior crural nerves. Then the knee jerk will be lost, and there will be weakness or paralysis of both lower extremities. As the clinical manifestations and a confirmatory bacteriological examination are sufficient evidence of the disease, we should be unwilling to lay much stress on the importance of the absence of the knee-jerk as a factor in diagnosis.

I have seen three cases of meningitis in which the knee-jerk was absent in the early stage of the disease. A boy eight years of age was admitted to the hospital complaining of occipital headache of four days' duration. He had vomited once on the day of admission. A quarter of a grain of calomel was administered every half hour until the bowels acted thoroughly. I saw him two days later. Headache continued. There was slight tenderness over the occiput. Rectal temperature, 102° F. Pulse, 100, and regular; respirations 24. No vomiting. Pupils and ocular fundi normal. No hyperæsthesia. There were neither physical signs nor evidence of infectious fever to account for the symptoms. *Both knee-jerks were absent.* This was a valuable sign, as it was known that they had been present. Provisional diagnosis of meningitis. Within thirty-six hours, hebetude increasing to stupor, rigidity of neck muscles, headache. Temperature, 103°. Nystagmus and hippus pupillæ. It was then learned that he had fallen and struck the occipital region about a week before admission, but was not rendered unconscious at the time. *Diagnosis,* convexity meningitis of traumatic origin. Prognosis doubtful. The disease assumed a favorable course under appropriate treatment. Complete recovery occurred at the end of about five weeks. When the symptoms of cerebral irritation subsided, on the fifteenth day, the knee jerks returned and were well marked. Their loss was probably due to the cerebral irritation exciting excessive inhibition.

In the fatal case of a child with lobar pneumonia, complicated by meningitis, the knee-jerks disappeared before the symptoms of meningitis were manifested. They were absent over a week and became well marked, even exaggerated, when pressure symptoms were evident a day or two before death.

It is of interest to note that Hughlings Jackson has recently shown that the knee-jerk is lost when there is a supervenosity of the blood, in asphyxia from coal gas, in the acute stage of some cases of apoplexy, etc.

In distinguishing a genuine epileptic convulsion from simulation, we must consider the absence of the knee-jerks and the absence of the light-reflex with dilated pupils as crucial tests in excluding simulation. Of course, it is within the range of possibility that an epileptic fit may be simulated by a person whose knee-jerks are absent as the result of an organic lesion, and in whom dilated and immobile pupils have been artificially produced by atropine. Such an individual would indeed be a *rara avis.*

The knee-jerk is absent in cases of diabetes only where there is peripheral nerve degeneration. This is manifested by symptoms such as muscular weakness in the extremities, circumscribed anæsthesia, and possibly persistent neuralgia, isolated paralyses, and disturbances in the nutrition of the skin, especially perforating ulcers and other gangrenous processes.

We now come to the significance of an exaggerated knee-jerk. It may be considered as exaggerated when slight percussion on the tendon *above* the patella elicits an active response. In brief, it may be said that any obstructive or destructive process involving the upper or cerebro-spinal segment of the motor tract is likely to and generally does occasion an exaggeration of the knee-jerk. Should the lesion be situated above the crossing of the motor tract, the exaggeration occurs upon the opposite side of the body, while a lesion below this point would manifest its symptoms on the same side.

The prevailing and accepted view to-day is that the reflex centres in the cord receive fibres from the brain which serve to inhibit or control their activity.

In patients who have received large doses of bromide in sufficient quantity to produce some of its physiological effects, as in epileptics, the knee-jerk can always be found either well marked or exaggerated. During the last ten years I have been in the habit of demonstrating this peculiarity in all cases of epilepsy appearing at the clinic. This phenomenon is due to the sedative action of the bromide on the motor cortex, thus diminishing the cerebral control over the lower reflex centres.

Primary or secondary degeneration affecting the lateral columns of the cord (spinal portion of the upper segment of the motor tract) is usually attended by exaggeration of the knee-jerk upon the same side as the lesion. In some cases of hemiplegia resulting from hæmorrhage in the internal capsule I have found the knee-jerk exaggerated (and ankle-clonus) on the third or fourth day. This is too soon for the development of a secondary descending degeneration, but is more likely due to a cutting off of the inhibitory fibres. In the early stage of paretic dementia, owing to the pathological changes in the cortex, the knee-jerk is often found markedly exaggerated, save in those cases where the posterior columns of the cord have been primarily involved. Then the knee-jerk may be lost. As the knee-jerks are often found pronounced or excessive in neurasthenia, hysteria, and alcoholism, or from mental fatigue, we must admit that in many instances the interpretation of such a symptom is more difficult than when the knee-jerks are absent. This is particularly the case when the overactivity is bilateral and uniform in character. A unilateral exaggeration of the knee-jerk is often of considerable pathological significance, and is usually associated with other objective symptoms, such as diminished muscular resistance, paresis, or rigidity.

From these cursory remarks it will be seen that in the study of the knee-jerk, as in other conditions, "correct observation is a matter of the greatest necessity, for on what we observe we have to make an interpretation and frame a line of action; consequently, if the observations are faulty, the interpretations we place upon them are valueless."

The Ohio State Medical Society.—The present officers of the society are as follows: President, Dr. Dan Millikin, of Hamilton; vice-presidents, Dr. J. H. Goss, of Lancaster, Dr. W. H. Humiston, of Cleveland, Dr. J. A. Murphy, of Cincinnati, and Dr. B. M. Ricketts, of Cincinnati; secretary, Dr. Thomas Hubbard, of Toledo; assistant secretary, Dr. H. M. W. Moore, of Columbus; treasurer, Dr. James A. Duncan, of Toledo.

OBSERVATIONS ON
EXCESSIVE INTESTINAL PUTREFACTION.*

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(*Continued from page 784.*)

Little is known at present as to the occurrence of phenol-potassium sulphate, except that it is present in health as one of the regular constituents of the total ethereal sulphates. It has been found by various observers that it is increased in some conditions of disease. Thus Salkowski found it increased in ileus and peritonitis, and Brieger in anæmia and cachexias, and von Jaksch * states that Strassen has found it regularly present in increased amounts in diabetes, although no change in the sulphate ratio was observed. The methods used for determining phenol included also the cresol present. It was formerly held that the amount normally present did not exceed 0·03 gramme in the urine for twenty-four hours, but more recent methods † give much higher results—0·07 gramme and 0·105 gramme.

We do not know what are the conditions that determine a pathological increase of phenol rather than indol, and as yet a knowledge of the amount in which it is present has been made of little practical value. Likewise, practically nothing is known regarding the special significance of the presence of skatol, cresol, and catechol.

We have elsewhere mentioned the occurrence of quinol and catechol in the urine of some cases of epilepsy. ‡

We may now pass to the consideration of some of the clinical conditions in which excessive intestinal putrefaction is met with sufficient frequency to put it beyond the range of an accidental association.

Excessive Intestinal Putrefaction in Intestinal Indigestion.—In recent years there has been a disposition on the part of clinicians to recognize the existence of cases of indigestion in which the symptoms point with reason to intestinal rather than gastric disturbance. In some instances text-books of practical medicine have taken note of this distinction, but their treatment of the subject must be regarded as inadequate and often misleading. The reason for this shortcoming is to be found in the inherent difficulties of the subject.# The symptoms to which intestinal indigestion gives rise vary a good deal in different cases, and are often mingled with the symptoms of unquestioned gastric indigestion. In such instances it may be impossible to say with certainty what shall be referred to the intestinal disorder. In other cases the symptoms and signs which would usually direct attention to the intestine are so slight as to be readily overlooked, although the constitutional effects resulting from the derangement may be pronounced. But in many cases where the symptoms, whether pronounced or equivocal, are those which suggest intestinal rather than gastric disturbance, there are present the objective evidences of excessive intestinal putrefaction. Whether or not signs and symptoms referable to the intestine exist in every case where excessive intestinal putrefaction is present could be decided only by the most extended and painstaking clinical study. Cases perhaps occur in which such excessive putrefaction gives rise to slight or no intestinal symptoms. But however this may be in exceptional instances, we have met with no case where such excess has been considerable in degree in which there have not been also present signs and symptoms which might fairly be interpreted as those of intestinal indigestion. Moreover, in numerous cases the study of the patient has been sufficiently close to establish beyond question a relationship, in individuals, between the occurrence of the evidences of this excessive putrefaction, on the one hand, and a group of varied symptoms, including local and general manifestation, upon the other.

The following histories are presented here in order to illustrate some of the clinical manifestations occurring in cases in which it is reasonable to consider intestinal indigestion a prominent factor, and in which the objective evidences of excessive intestinal putrefaction were positively ascertained.

These cases are instructive, as showing the coincidence of certain signs and symptoms with the excess of aromatic sulphates in the urine. The cases which have been chosen for presentation illustrate to some extent the variety that exists in the manifestation of intestinal indigestion. We are not yet in a position to describe with entire satisfaction the symptomatology of intestinal indigestion, but will attempt a discussion of its leading features after the clinical histories have been recorded and commented upon:

Case I.—L. H., female, aged thirty years; weight, one hundred and twenty pounds; married. Has always been well, barring occasional periods characterized by abdominal pain, distention, intestinal flatulence, and constipation, associated with loss of appetite and general malaise, the entire disturbance lasting one or two days. Patient came under observation November 5, 1892. Just previous to this was in good general condition, with good appetite and no apparent disturbance of digestion; there was slight constipation; stools were large, light brown in color, and natural in odor. Mixed diet, with moderate use of sweets, pastries, etc. About November 5th patient was troubled with obstinate constipation, intestinal flatulence, occasional slight abdominal pain, and a sense of fullness in the abdomen after meals. A small movement was very offensive in odor and contained considerable mucus. Appetite good, no headache, sleep interrupted with dreams and intervals of wakefulness. An examination of the urine collected during November 5th (twenty-four hours) gave among other results of analysis the following:

Preformed sulphates	1·826 gramme.
Combined sulphates	0·236 “
Ratio	7·7
Indigo blue	Very strong.
Uric acid	0·430 gramme.
Urea	21·093 grammes.
Ratio	49·0

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* *Loc. cit.*

† Kassler and Penny. *Zeit. f. physiol. Chem.*, xvii, p. 117.

‡ Herter and Smith. *Loc. cit.*

The readiness with which the gastric contents can be studied accounts for the large literature upon disorders of gastric digestion. The very small extent of the literature of intestinal disturbances of digestion plainly reflects the difficulty of investigating this class of disorders.

The significant features of this analysis are the high combined sulphates and the great excess of indigo blue, together with the presence of a normal uric-acid ratio.

The patient's condition improved somewhat after the exacerbation above recorded; the abdominal pain, flatulence, and constipation wore away and sleep became normal. There is no record of the putrefactive products in the urine at this time. On December 7th the patient again felt poorly and had some intestinal flatulence and was without appetite. Analysis of urine for the day:

Preformed sulphates	1·433 gramme.
Combined sulphates	0·149 "
Ratio	9·6
Indigo blue	Strong.

At this time a restricted diet was instituted, consisting chiefly of meat, milk, eggs, with limited vegetable nitrogenous food. Five grains of sodium salicylate were given after each meal. From this time on, doubtless in consequence of the restriction in diet, the ratio of the sulphates fell and remained for some time within the normal. There was, however, little actual improvement, the patient continuing to be troubled more or less with flatulence, slight headache, and general debility. It is noticeable that during this period indigo blue was obtained from the urine in large amount. The figures for this period are as follows:

DATE.	Preformed sulphate, grammes.	Combined sulphate, grammes.	Ratio.	Indigo blue.	Urea.
Dec. 19, 1892	1·454	0·106	13·7	Very strong.	16·125
Dec. 30th	1·884	0·180	10·4	" "	23·406
Jan. 11, 1893	1·611	0·109	14·8	" "	18·220
Feb. 2d	.....	.....	....	Very, very strong.	
Feb. 3d	.....	.....	....	Very, very strong.	
Feb. 5th	2·002	0·151	13·2	Very strong.	25·948
Feb. 6th–8th	4·631	0·275	16·8	" "	47·458
Feb. 10th	2·126	0·131	16·2	Medium.	22·622
Feb. 11th	2·982	0·180	16·6	Strong.	29·615

On February 12th the patient's condition was worse than it had been since November 5, 1892. There was a return of the symptoms present at that time: slight abdominal pain and distention, flatulence, loss of appetite, depression of spirits, and debility. The analysis for this day gave the following results:

Preformed sulphates	1·410 gramme.
Combined sulphates	0·181 "
Ratio	7·5
Indigo blue	Medium strong.

The urea for this day was rather lower than on previous days, as might be expected, the total being 19, as against 16+, 23+, 18+, 25+, 43+, 22+, and 29+ for previous days. The above results are interesting, chiefly because of the contrast in this ratio of sulphates with the ratio of previous days (the ratio (7·5) being the first above the average normal (10) observed since December 7, 1892), and because of the coincidence of this high ratio with a distinct exacerbation of the symptoms.

On February 23d the patient's condition was distinctly better than usual and the analysis for this day showed a marked contrast with that of the day on which it was last recorded. The figures are as follows:

Preformed sulphates	2·119 grammes.
Combined sulphates	0·158 gramme.
Ratio	13·4
Indigo blue	Traces only.
Urea	23·0+ grammes.

It should be noticed that for the first time since this case was under observation the indigo blue amounted to traces only. The next day, February 24th, the condition is described as average. There were still only traces of indigo blue, but the ratio of sulphates was higher (11·3) than it should be on a restricted diet.

On April 6th and on May 9th, the condition being on these days respectively fair and better than usual, the following figures were obtained:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.
April 6th	1·099	0·68	15·1	Negative.	12·395
May 9th	2·065	0·115	17·9	Traces.	23·069

CASE II.—R. M., aged forty-three years; weight, a hundred and forty-five pounds. Mother died of carcinoma of mamma. Brother died of diabetes. Delicate health early in life; pulmonary hæmorrhages at twenty. Gradual improvement in health since then. During past year has been neurasthenic, being troubled especially with sleeplessness, frontal headache, undue emotional excitability, and moderate loss of weight and strength. Late in August, 1892, had severe headache and nausea after overexertion and an indiscretion in diet consisting of the free use of buckwheat cakes and trout. The pain in this attack was located on the left side of the head, and was very intense at times and lasted several days. There was much prostration at this time, and the temperature ranged between 100° and 101°. When the acute symptoms wore away it was noticed that the left eyelid drooped considerably, that the left pupil was much contracted, and that the left eyeball was more prominent than usual. Examination showed that sensation on the face was unimpaired, but that the left side of the face was cooler to the touch than the right and paler in color, and that the left side of the face failed to perspire even when perspiration was free on the right side. The fundus was normal, the left supraorbital nerve was extremely tender to pressure, and over the left temple was a small spot of great sensitiveness to the touch.

Before the onset of the present trouble the patient had suffered from time to time with left supraorbital neuralgia. This now recurred with much greater severity and frequency than formerly.

The patient remained in very poor health for many months. The neurasthenic symptoms above mentioned persisted, and there was almost continual discomfort from the accumulation of gas in the intestine, the bowels being often constipated and sometimes loose. The fæces were light in color and often contained a large amount of mucus.

An examination of the urine, made September 26th, showed the presence of excessive intestinal putrefaction. During the five months following, most of the examinations made showed some excess of the putrefactive products, especially an excess of indican. The quantity of indican was certainly greatest at times when the patient was most depressed and was suffering from intestinal flatulence and constipation. After the first, the ratio of the sulphates, as shown in the appended table, returned to within the limits of the normal, but this was unquestionably owing to the exclusion from the diet of the vegetable nitrogenous foods.

With the gradual improvement which set in, the urine returned to normal as regarded the amount of putrefactive products contained in it, and indigo blue was no longer found.

The results obtained in this case are as follows:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.	
Sept. 26, 1892	2·929	0·313	9·3	Medium.	40·105	
Oct. 10th....	......	......	....	Traces.	......	On greatly restricted diet.
Oct. 17th....	2·825	0·307	9·2	Rather strong.	34·497	
Nov. 2d.....	2·741	0·259	10·5	Medium strong.	34·904	
Nov. 14th....	2·696	0·234	11·5	Weak.	32·498	
Nov. 28th....	3·168	0·225	13·9	Medium.	36·170	
Dec. 5th.....	3·443	0·273	12·6	Weak medium.	38·109	
Dec. 19th....	3·050	0·200	15·2	Traces only.	34·566	Improvement on free mixed diet.
Jan. 12, 1893.	3·525	0·188	18·7	Medium.	28·49	
May 8th.....	2·620	0·279	9·4	Negative.	33·939	
Nov. 12th....	2·752	0·261	10·5	Medium.	33·573	
Jan. 7, 1894..	......	......	....	Negative.		
May 6th....	......	......	....	"	35·350	

On December 4th, examination of the urine passed just after an attack of headache, gave:

Preformed sulphate................	2·465 grammes.
Combined sulphate................	0·210 gramme.
Ratio...........................	11·7
Indican......................	Strong.
Urea..................	29·878 grammes.

Case III.—C. L. D., female, aged thirty years; weight, about a hundred and twenty-five pounds. Well nourished, slightly anæmic. Has been in poor health for several years. At the present time complains of general debility, lassitude, shortness of breath during exertion, and frequent slight frontal headache. Though not disposed to emotional disturbance, the patient is rather inclined at present to mental depression. Bowels are regular and movements are normal in color and consistence. There is occasional moderate intestinal flatulence. Appetite is fair. There is at times a sense of emptiness and gnawing referred to the upper part of the abdomen. An examination of the urine passed June 4, 1892, gave the following results:

Urea............................	19·609 grammes.
Uric acid........................	0·418 gramme.
Preformed sulphates..............	1·322 "
Combined sulphates...............	0·237 "
Ratio...........................	5·5

The patient was put upon a diet consisting chiefly of meat, and from which sweets, starches, and peas and beans were excluded with especial care. Iron and nux vomica were prescribed and more exercise was advised. In the course of three weeks there was distinct improvement as regards all the symptoms mentioned above, and the improvement noted at this time was maintained for several months. Unfortunately, no examination was made of the urine during the period of improvement, and the record of the case is therefore defective.

Case IV.—C. G., male, aged sixty years; weight, a hundred and seventy-four pounds. Has been in poor health ever since his thirtieth year, when he had what were thought to be pulmonary hæmorrhages. Ever since that time he has been neurasthenic, and, at times, has been disposed to be hypochondriacal. The symptoms complained of at present (April, 1892) have existed in greater or less degree than now for many years. These symptoms are debility, insomnia, pressure sensations in the back of the head, headache, depression of spirits, at times very great, loss of memory, "twitching sensations" and fibrillation (especially mornings), poor and capricious appetite and constantly coated tongue, intestinal flatulence with great distention of the abdomen, abdominal pain, alternating diarrhœa and constipation, occasional cardiac palpitation and tachycardia, and frequent passage of gravel in considerable quantities. The progress of the patient's troubles is by no means even; there are days of comparative well-being, followed by days of depression and exacerbation of all the symptoms. It is a noticeable fact that periods of mental depression and debility, insomnia, and impaired memory correspond to the time at which the intestinal symptoms, flatulence, abdominal distention, etc., are most pronounced.

Examinations of the urine were made from time to time. The results are recorded below. About the time of the first examination the patient was placed under treatment consisting chiefly of the careful regulation of the diet (which up to this time had been free) and the use of tonics. Vegetable nitrogenous food was excluded so far as possible from the diet. Rest was also insisted upon. Some improvement occurred immediately and in the course of a year the improvement was considerable. This improvement consisted in an increase in the periods of well-being and a decrease in the periods of depression and intestinal disturbance, so that the average condition was better notwithstanding the recurrence of most of the symptoms.

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.	
Mar. 21, 1892.	2·061	0·295	6·9	Strong.	29·893	
May 2d......	2·628	0·236	11·1	"	31·637	
May 23d.....	1·826	0·246	7·4	"	24·53	
June 6th.....	2·380	0·231	10·3	"	30·425	
June 20th ...	2·507	0·257	8·7	"	32·803	
June 26th ...	2·101	0·195	10·7	"	29·338	
June 30th ...	2·283	0·221	10·3	"	27·172	
July 4th.....	2·463	0·231	10·6	"	29·364	
Oct. 17th....	1·623	0·146	9·9	"	23·338	
Oct. 23d.....	1·440	0·222	6·4	"	19·298	
Nov. 13th....	2·052	0·214	9·5	Very strong.	29·265	
Nov. 21st....	2·039	0·192	10·6	Very strong.		
Jan. 9, 1893..	1·713	0·192	8·9	Medium strong.	32·626	
May 7th.....	1·327	0·221	6·0	Strong.	19·523	
May 21st....	1·422	0·154	9·2	"	21·997	Condition poor.
Mar. 19, 1894.	1·455	0·155	9·4	"	23·265	Better.

Case V.—A. L., male, aged sixty years; weight, two hundred and twenty-seven pounds. General health has always been excellent. Is a hard worker and an abstemious man in every respect. Takes claret with meals and whisky in moderation. For three years past has been troubled each spring with a general urticaria which lasted many weeks. Thinks he is run down at these times. Has a "tendency" to rheumatism; is apt to be troubled with painful and rigid muscles, especially those of the neck. Has found of late that he tires very readily and that sleep does not refresh him as formerly; he gets up tired. Has also been troubled with mental dullness, defective memory, and irritability. The abdomen is most of the time considerably distended by gas, a great deal being passed *per rectum*. At times there is abdominal pain. There is frequent epigastric discomfort and sometimes tenderness on pressure below the sternum. Some days there is almost constant slight nausea. The stools are usually clay-colored. Examination of the urine gave the following results:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.
Feb. 9th.......	3·195	0·244	13·1	Strong.	28·553
Feb. 10th......	2·417	0·256	9·4	Very strong.	26·111
Feb. 14th......	3·052	0·240	12·7	" "	24·859

On a diet from which sugar and starch and vegetable nitrogenous food was largely excluded the symptoms above enumerated disappeared very rapidly. At the end of six weeks there was improvement in the following respects: Sleep was more refreshing, the head felt clearer, memory was better, and fatigue came on less readily. There was also entire disappearance of nausea and a great diminution in the abdominal distention and flatulence. The rheumatic pains in the neck ceased after a few days and have not recurred.

An examination of the urine made at this time gave the following results:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.
April 19th.....	5·531	0·302	18·3	Medium.	41·887
April 20th.....	4·479	0·266	16·8	Strong.	37·715

Shortly after this the patient indulged in a large dinner, without any restraint, using champagne freely and taking lobster soup, sweets, etc. The day following he felt dull mentally, and, for the first time in many weeks, there was a return of nausea. There was also considerable intestinal flatulence. Then, returning to a strict diet, improvement again set in. The urine of June 14th and 15th was studied, the patient being in better condition than usual. The results are:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.
June 14th.....	3·625	0·286	12·7	Medium.	39·570
June 15th.....	3·855	0·204	18·9	Weak medium	25·575

Case VI.—J. L., female, aged twenty years; weight, about a hundred and forty pounds. General health good, but has suffered ever since her twelfth year from indigestion. At the present time suffers from pain in the epigastrium soon after eating, and very frequently there is abdominal pain associated with great intestinal flatulence and distention of the abdomen by gas. There is very rarely gastric flatulence. While these abdominal symptoms are present the patient feels weak and somewhat depressed. The sensation of emptiness and exhaustion is relieved temporarily by food. Frequently there is nausea all day long, very rarely there is vomiting. Bowels are regular and fæces are normal in appearance. The patient is a large eater and takes whatever appeals to her appetite without much reference to her condition.

Examinations gave the following results:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.	
Mar. 16th....	3·971	0·349	11·1	Strong.	51·028	Condition bad; depression and flatulence.
April 26th...	2·169	0·209	10·4	"	29·580	Much depressed and weak; flatulence.
April 27th...	2·826	0·220	12·8	Weak.	43·5	Feeling better; less flatulence and debility.

Case VII.—H. A. C., male, aged twenty-eight years; weight, a hundred and fifty pounds. Has always been in good health, barring an occasional severe migraine. In October, 1892, had an attack lasting nearly a week, during which there was almost continual abdominal pain, flatulence, diarrhœa, moderate fever and prostration. The stools were not watery, but consisted of large, almost white, cheesy movements without the characteristic fæcal odor, and resembling the peculiar stools not rarely seen in children with intestinal disturbance. This attack was brought on by eating oysters that were partly decomposed. Ever since this attack there has been a tendency to the occurrence of slight intestinal disturbance, especially after the use of lobster and oysters and clams, even when apparently fresh, and after the use of peas and beans. These periods of intestinal disturbance last a day or less, and are sometimes associated with or followed by diarrhœa. They have these symptoms in common: slight or considerable abdominal pain, intestinal flatulence and borborygmi, general malaise, and usually slight mental depression. The urine in this case ordinarily contained no indican, but during the periods above mentioned was regularly found to give a medium strong reaction. The correspondence in this case between the presence of indican and this group of symptoms was strikingly close. For example, on April 30, 1893, an indiscretion in diet was followed in a few hours later by slight abdominal pain, flatulence, borborygmi, frequent micturition, and depression of spirits. The urine passed (two micturitions) during the remainder of the day gave a medium strong indican reaction. The following day the symptoms had ceased, and no more indican was found during the following week although the urine was tested several times each day. On May 9th the eating of lobster in the middle of the day was followed in a few hours by abdominal pain, flatulence, borborygmi, and diarrhœa. The first urine passed after the beginning of this attack contained indican. After about three hours the symptoms ceased almost as abruptly as they had begun; the urine passed next gave no indigo-blue reaction. The following morning there was a recurrence of the above symptoms without the diarrhœa, lasting several hours, and the urine passed in two successive micturitions following the commencement of this attack gave a medium strong indigo-blue reaction. The indican disappeared from the urine with the disappearance of the symptoms.

The record of this case is defective in that the sulphates were not determined throughout. At times, however, the ratio of the sulphates has been normal when indican was present and intestinal flatulence was complained of.

Case VIII.—H. P., male, aged twenty-two; weight, a hundred and forty pounds. Has been in fair health, barring susceptibility to colds in the head and attacks of laryngitis, and frequent acute disorders of digestion. On February 7, 1893, patient ate a good many fried oysters for breakfast. Next day he suffered from intestinal pain, borborygmi, flatulence, nausea, and malaise. The pain soon disappeared, but there was more or less intestinal disturbance for many days. Examination made February 10th and 11th showed very strong indican reactions. As the patient improved gradually the indican and ethereal sulphates decreased in amount, but remained for a considerable time in excess of the normal.

Case IX.—C. H., girl, aged two years and a half; weight, thirty-two pounds. Has always been in good health and remarkably free from digestive disorders. About January 25, 1893, without known cause, began to be restless and irritable. There was much loss of appetite, slight constipation, and slight fever. The stools were rather lighter than normal in color; otherwise there was no indication of digestive disorder. These symptoms continued with little change till about February 10th. The slight elevation of temperature was almost continual, fever ranging between 99° and 100·5°. During this time there was loss in weight (about a pound and a half). There was no evidence during this period of the existence of abdominal pain, or flatulence, or headache.

The urine had been examined repeatedly previous to the period of illness recorded above. At no time was any trace of indigo blue found, and the sulphates were in each instance normal. The results given below represent the conditions found before, during, and after the illness:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Urea, grammes.	Indigo blue.	
May 4, 1892..	0·770	0·037	19·8	11·508	None.	Period of good health.
June 21st....	0·977	0·037	25·4	11·119	"	
Oct. 6th.....	1·101	0·035	31·5	12·930	"	
Jan. 30, 1893.	0·654	0·039	16·7	8·249	Medium strong.	Period of illness.
Feb. 3d......	0·658	0·040	16·4	8·295	Strong.	
Feb. 7th.....	0·640	0·041	15·6	8·392	Medium strong.	
Feb. 11th....	0·692	0·041	16·9	9·084	Medium strong.	Period of improvement.
Feb. 14th....	......	......	....	......	None.	

Several attacks similar to that recorded have occurred since, and in every instance indigo blue has been present at the time of the fever and digestive derangement, and for some days afterward in diminishing amounts. It is noticeable that the period during which indigo blue persisted in the urine after the subsidence of the acute symptoms of the attack has been increasing. At present (March, 1893) there is probably a trifle of indigo blue in the urine most of the time. The following results have since been obtained:

DATE.	Preformed sulphate, gramme.	Combined sulphate, gramme.	Ratio.	Urea, grammes.	Indigo blue.	
April 14, 1893	0·625	0·038	16·4	7·975	Negative.	
May 10th....	0·801	0·026	30·8	8·523	Traces.	
May 11th....	0·454	0·020	22·7	5·748	Medium.	
May 21st	0·436	0·018	24·2	4·781	Strong.	Feverish, irritable, appetite poor.
May 28th....	......	......	....	......	Traces only.	
June 18th ...	0·443	0·026	17·0	5·161	Weak.	

Repeated examinations during the year following this time showed considerable variation in the amounts of indigo blue obtained in the reaction, the presence of large amounts corresponding pretty regularly with the appearance of the usual symptoms in the patient. The last examinations are:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Urea, grammes.	Indigo blue.	
Oct. 3, 1894..	1·361	0·081	16·8	16·727	Strong.	Somewhat irritable.
Nov. 5th.....	......	......	....	12·222	Weak.	Condition good.

CASE X.—A. K., aged fifteen months. On admission to the Babies' Hospital in December, 1892, weight seventeen pounds eleven ounces; tolerably nourished; milk diet. Soon after admission the symptoms were as follows: Vomiting, poor appetite, light-green or white stools, feeble pulse, somnolence, prostration, and slight irregular elevation in temperature (under 100°).

On December 24th, a little more than a week after admission, the stools were fluid, green, offensive in color, and contained mucus, small greenish masses, and something having the appearance of membrane. The child was in a stuporous state at this time, and it was noticed that there was considerable rigidity of the lower extremities. This rigidity was intermittent, and excited by movement or stimulation of the skin.

The intestinal symptoms continued without important changes. Early in February, 1893, there was a considerable increase in the rigidity, which now involved the arms, legs, and trunk, and became continuous. There was great exaggeration of the knee-jerks and typical and violent ankle-clonus. The child cried as if in pain when touched. No evidence of organic brain or spinal-cord disease. There was a sharp rise in temperature about this time. Loss of weight between admission and February 1, 1893, nearly four pounds. By March 1st the general condition had improved considerably: increase in weight; appetite better; stools less often green, frequently normal; temperature normal; less rigidity, and less evidence of pain to touch.

During March the weight increased rapidly, rigidity became slight, and frequently no clonus could be obtained. By May 1st rigidity occurred only at times, and, though the knee-jerks were active, ankle-clonus could rarely be brought out, and then only feebly. At no time was there paralysis in the lower extremities or loss of sensibility. The electrical reactions were not taken.

During the period of spasm and pronounced intestinal disturbance the urine contained very large amounts of indican and high ethereal sulphates. As improvement occurred, these evidences of excessive intestinal putrefaction grew less and finally disappeared entirely.

The results obtained in this case are as follows:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Urea, grammes.	Indigo blue.	
Feb. 9, 1893..	0·182	0·027	6·7	2·649	Very strong.	
Feb. 28th....	0·459	0·028	16·4	......	Very strong.	
April 18th...	0·2405	0·0365	6·6	3·505	Negative.	Improving.
July 1st.....	......	......	....	......	"	
Dec. 6th.....	0·724	0·059	12·3	8·612	Strong.	
Dec. 18th....	......	......	....	......	"	
Jan. 18, 1894.	......	......	....	......	"	
Feb. 2d......	0·954	0·068	14·0	12·985	Very strong.	
Feb. 8th.....	0·694	0·044	15·7	9·242	None.	Irrigation during these days.
Feb. 11th....	0·234	0·013	18·0	2·702	Weak.	
Feb. 17th....	......	......	....	......	None.	

At one time the symptoms in this case strongly suggested pressure on some part (cervical) of the spinal cord. It is now a question whether the case may be regarded as one of tetany, notwithstanding the absence of the characteristic contractions.

CASE XI.—L. R., aged fifty years; weight, two hundred and twenty-two pounds; well-nourished man. For about a year he has had occasional periods of nocturnal dyspnœa. These have recently become frequent and very distressing, accompanied with cyanosis, præcordial fear, etc. Examination shows presence of mitral regurgitation and moderate hypertrophy. Symptoms at present are those of broken compensation, dyspnœa, cough, intermittent pulse, slight œdema of feet, and scanty urine. The onset of dyspnœa seems to be occasioned at times by great accumulation of gas in the intestine. For a year past intestinal flatulence, with borborygmi and distention of the abdomen, has been an annoying and almost constant symptom. No diarrhœa or constipation. No depression of spirits, but a good deal of irritability, frequent headache, and considerable loss of physical endurance. Examination of the urine showed a medium strong indigo-blue reaction, normal sulphates, very excessive uric acid, and considerable oxalate of calcium.

CASE XII.—Mrs. G. W. W., aged thirty-five years; weight, one hundred and fifty pounds; good health until four years ago; then began to have gastric and intestinal flatulence, pronounced and persistent paroxysms of pain in left umbilical region, periods of marked depression of several days' duration, irritability, and loss of strength. These symptoms have continued until the present time. The following are figures obtained while the patient was on a mixed diet and before treatment was attended by improvement. On a diet consisting chiefly of milk and meat and under the influence of massage and rest the patient improved very greatly in the course of two months, but the later results on the urine are unavailable because salol was administered. The patient was not constipated:

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.
Oct. 13, 1894..	1·386	0·199	6·9	Medium.	17·912
Nov. 11th.....	1·027	0·267	3·8	"	17·140

CASE XIII.—G. S. S., aged fifty years; weight, one hundred and seventy-eight pounds. Suffers from rheumatic pains about hips and sacrum, especially when standing; the pains are dull and fugitive. Is much troubled with insomnia; has bad dreams, and awakens unrefreshed. Has occasional flatulence and abdominal pain. Is irritable and somewhat subject to depression. Is not constipated.

DATE.	Preformed sulphate, grammes.	Combined sulphate, gramme.	Ratio.	Indigo blue.	Urea, grammes.
June 7, 1893...	1·406	0·167	8·4	Strong.	18·791
June 8th......	1·462	0·173	8·4	"	19·988

CASE XIV.—C., aged about forty years. Three days ago began to have severe abdominal pain in epigastrium and in right and left hypochondriac regions, with marked local tenderness. Since then has had nausea almost constantly, and has been passing colorless stools. These symptoms entirely disappeared in the course of a week on a diet of peptonized milk. For many months the patient had been on a diet consisting mainly of cereals.

Date, Nov. 22, 1894.

Preformed sulphate................	1·793 gramme.
Combined sulphate................	0·363 "
Ratio...........................	4·9
Indigo blue......................	Negative.
Urea............................	27·912 grammes.

The histories presented above are all of them the records of cases in which positive evidence was obtained of the existence of excessive intestinal putrefaction by a study of the urine. Further, in most of these cases the chief symptoms were symptoms of intestinal disturbance such as may reasonably be grouped under the name intestinal indigestion. The contemplation of these facts leads one to inquire into the nature of the relation between the putrefactive products observed and the intestinal symptoms, with a view to finding out which of the symptoms of disordered digestion, if any, are regularly associated with the occurrence of the putrefactive products in question.

The symptoms ordinarily referred to disordered intestinal digestion may conveniently be grouped under two heads: the local symptoms, due to the direct effect upon the bowel of the disturbance of its function, and the remote symptoms due to the absorption of toxic substances from the intestine, or to the reflex influence of irritation of the intestinal mucous membrane.

Of the local symptoms of intestinal indigestion, the most characteristic and the most important for diagnostic purposes is unquestionably intestinal flatulence. By intestinal flatulence is meant the accumulation of gas in the small or large intestine. This gas is usually passed *per anum*, but may be in part eructated by the stomach. It is necessary, of course, to distinguish intestinal from gastric flatulence, and to bear in mind that gas formed in consequence of gastric indigestion solely may be passed on to the intestine. The degree of flatulence varies greatly. In many cases there are no pronounced evidences of the presence of gas except the frequent passage of wind by the anus; there is no appreciable abdominal distention. In other cases there is marked abdominal distention, and not rarely slight pain, or at least a sense of discomfort, in the abdomen due to excessive peristalsis. The distention of the abdomen with gas may be a most distressing symptom. In Case IV frequent great abdominal distention was, perhaps, the most annoying symptom, and its presence seemed in several instances to occasion the onset of attacks of tachycardia lasting several hours and disappearing with the relief of the distention. In Case XI also great abdominal distention was of frequent occurrence, and at times appeared to determine the onset of the nocturnal dyspnœa due to the mitral insufficiency.

The association of intestinal flatulence with abdominal pain and with excessive peristalsis (symptoms often following palpable errors of diet) at one time made it appear probable that this symptom was to be considered an evidence of disordered intestinal digestion. But observations made upon the urine of persons having intestinal flatulence failed to furnish good evidence that such flatulence is usually associated with excessive putrefactive processes in the intestine. In some cases, however, where a sufficiently careful record has been kept to enable a judgment to be formed, there has been a close correspondence between the existence of flatulence and the presence of indican in the urine. This was so in Cases I, II, IV, and VII, and in some cases not included in the preceding histories. In Case VII, in which there were frequently repeated slight attacks of intestinal indigestion, the urine was examined several times daily for many weeks, and the correspondence between the occurrence of flatulence and the appearance of indican in the urine was strikingly close. In every instance the urine passed after the beginning of flatulence gave a medium or weak indican reaction which disappeared as soon as the symptoms wore away. In no instance did the urine passed in the intervals between the intestinal disturbance contain any indican. In Case I the diminution of indican coincided with marked diminution in the flatulence and other intestinal symptoms. In Case II the indican was greatest in amount at the time when intestinal flatulence was an annoying symptom. Since the disappearance of indican from the urine there has been entire relief from flatulence, although certain other intestinal symptoms, as light-colored and mucous stools and constipation, have recurred from time to time. In Case IV there has been a decided reduction in the amount of indican in the urine and a reduction in the degree and frequency of intestinal flatulence, together with distinct improvement in other respects. But though the indican has decreased it has not disappeared, and has been found in considerable amount when there was almost entire freedom from flatulence. In Case V, again, there was a pronounced reduction in the degree and frequency of intestinal flatulence, with only a slight reduction, if any, in the intensity of the indigo-blue reaction. In Case XI, on the other hand, there appears to be a close relation between the degree of flatulence and the presence of indican. In Cases IX and X (children) it was not possible to study carefully the intestinal condition as regards flatulence. In Case XI there was a great deal of flatulence habitually, and a single examination showed a strong indigo-blue reaction.

So far, then, all that has been established is the fact that in a number of cases the occurrence of intestinal flatulence was associated with the presence in the urine of indican; that in some cases this correspondence has been remarkably close, but that there is no necessary relation between the two conditions. Nothing has been said as to a possible relation of flatulence to the total ethereal sulphates of the urine.

A survey of the preceding cases in connection with the figures respecting the total ethereal sulphates shows very clearly that there is no necessary relation between flatulence and an abnormally high ratio of the combined to the preformed sulphates.

In Cases I, II, VII, IX, and XI, the ratio of sulphates was habitually within the normal, notwithstanding the occurrence of indican and of flatulence. In Cases IV, V, VI, VIII, and X, the ethereal sulphates were excessive (judging from the ratio) and indican was present. In Case III the ratio of the sulphates was high, but there was neither indican nor flatulence.

Thus we have to recognize the existence of two classes of cases of intestinal disorder: 1. Cases in which there is flatulence and usually only a moderate amount of indigo blue, and in which the indigo blue disappears from the urine when the flatulence is removed by means of a change in diet; and 2, cases with or without continuous flatulence in which there is a large amount of indigo blue in the urine, but in which there is little or no change in the amount of indigo blue in the urine when the flatulence is controlled. A large quantity of indican is therefore a permanent feature in these cases. How do these cases differ from those of the first class? It is not unlikely that the explanation of the difference is as follows: In the first set of cases we may assume that the disorder is primarily one of putrefaction of nitrogenous food, due to an indiscretion in diet or to the deficient or perverted action of the bile or pancreatic juice, or to both these causes together. Indol is formed by the decomposition of the food during duodenal digestion, and, with this, various gases arise, whose accumulation causes flatulence. That the food is really at fault in these cases is shown by the circumstance that a modification of the diet by the use of nitrogenous food of the kind readily digested, and which is thus least apt to undergo putrefactive changes, is followed by the disappearance of the flatulence and indigo blue.

In the second class of cases it is probable that the food is not at fault primarily, since the modification of the diet has relatively little effect upon the indican. From the constancy of the indican it seems probable that there is present a persistent condition of the intestine concerned with the production of indol. We have already noted the fact that indican is formed from the mucus of the bile, and it occurs to one that in these cases the putrefaction may depend on the presence and stagnation of an excessive amount of intestinal mucus from the bile or other source. The persistence of this condition indeed leads to a suspicion that somewhere in the duodenum the mucous membrane is in a state of catarrhal inflammation to which the excessive formation of mucus might reasonably be referred. The absence of flatulence at times in these cases would be explained by the fact that the food does not necessarily share in the putrefactive process. We have, of course, no proof that this view of the case is the correct one, but it seems to harmonize with what is known about the causes of intestinal putrefaction. It is interesting to note in this connection certain of the facts relating to the occurrence of intestinal putrefaction in starvation. These facts are, the occurrence of large quantities of indican in men and animals in starvation, the absence, so far as known, of flatulence, and the accumulation in the intestine, in this state, of a peculiar kind of fæces, consisting largely of broken-down epithelial elements, mucus, etc.

Abnormities in the fæces, as shown by changes in their appearance or in their chemical characters, are of frequent occurrence in the subjects of intestinal indigestion, and were noted in many of the cases recorded above. As might be supposed, no relation has been established between the occurrence of such abnormities and excessive intestinal putrefaction, and it would take far more careful studies than any which have yet been made to determine whether or not such a relation exists. A number of things seem to indicate that many of the peculiarities in the fæces seen in cases where excessive intestinal putrefaction occurs are to be considered evidence of intestinal indigestion.

Thus the presence of clay-colored stools is a feature of many cases where the sulphates are excessive and indican is abundant, and there is some reason to ascribe this condition to the defective secretion of pancreatic juice.[*] Again, the presence of fat in excess in the fæces (*i. e.* much more than twenty per cent. of the solid matter) is frequently met with, and is surely to be regarded as due to defective secretion either of the pancreatic juice or the bile[†] or both. Another point which it might pay to study is the ratio of the fatty acids in the fæces to the neutral fats, since a marked disturbance of the normal ratio (say from eighty to forty per cent.) is regarded by some authors[‡] as positive evidence that the pancreatic juice is not doing its part in intestinal digestion. It would also be of interest to note carefully the quantity of stercobilin in the fæces, this being very abundant in some persons having an excess of the putrefactive substances in the urine. This is, however, also found in excess in persons in whom no excess of intestinal putrefaction is present. A very hurried passage of partially digested or almost unchanged food along the alimentary canal is apt to occur from time to time in those who are the constant subjects of excessive intestinal putrefaction, but it is doubtful if this is any evidence of defective or altered intestinal secretion. It is rather evidence of defective absorption and excessive peristalsis. But it is probably fair to regard its occurrence as one of the signs of intestinal or gastro-intestinal indigestion. There is reason to believe that during such active peristalsis aromatic putrefactive products are absorbed from the intestine in only very small amount.* The occurrence of considerable mucus in the stools is a common occurrence in intestinal indigestion, and doubtless often depends on an enteritis. It does not appear to bear any close relation to the occurrence of intestinal putrefaction.

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[*] Walker, quoted by Thacher.

[†] See Thacher, *N. Y. Med. Jour.*, 1893.

[‡] Leo, also Müller. In one case the neutral fats were present in very small amount, the fat of the fæces consisting chiefly of soaps and

The influence of constipation on the appearance of putrefactive substances in the urine has been discussed elsewhere. It is important to note here the frequent occurrence of constipation in those who have the symptoms of intestinal indigestion. It is, however, certain that constipation, using the term in its ordinary sense, can not be solely responsible for the increase of putrefactive products found in the urine in intestinal indigestion. This is shown by the fact that in some cases these products continue present in excess, and with little or no diminution after the constipation has been relieved. But it should be remembered that there may be in some of these cases an abnormal delay in the passage of fæces through the intestine although there is a daily movement. Such a condition, if it occurs, would constitute a virtual if not an apparent constipation, and might be responsible, in a measure at least and in some cases, for the appearance of high ethereal sulphates. In order to be able to judge regarding this point, we ought to have more information about the rapidity with which food normally makes its way through the intestine.†

A minority of the subjects of intestinal indigestion complain at times of some form of abdominal pain. Sometimes the pain is spasmodic and migratory, being referred first to one part of the abdomen, then to another—usually to the lower part of the abdomen, and frequently to one or other side. This colic is commonly associated with flatulence, and perhaps with some degree of abdominal distention. There is, of course, no doubt as to the dependence of this pain upon spasm of the muscular coats of the intestine. It is due, probably, in most instances to the irritation produced in the course of putrefactive changes in food during intestinal, probably pancreatic, digestion. The pain may, it is said, have nothing whatever to do with intestinal indigestion and be of centric origin, so that we can not always regard it as indicating intestinal indigestion. The epigastric pain which comes on in some of the patients who have excessive intestinal putrefaction is more difficult to interpret. The pain varies much in intensity in the same and in different persons, and in the time of its onset after a meal. It may be difficult to decide whether, in a given case, such pain is gastric or duodenal. The fact that in some cases it is relieved by washing out the stomach seems to show that it may be of gastric origin. According to Golding Bird, undue relaxation of the pylorus, with a rapid escape of the stomach contents into the duodenum, is the explanation of the pain in the intestinal cases, but it is doubtful whether this is really the explanation. The length of time at which the pain comes on after eating does not, as pointed out by Allchin,* aid in the determination of the origin of the pain, for gastric and duodenal digestion progress to a considerable extent simultaneously. In some cases where there is excessive intestinal putrefaction there is not only severe and continuous epigastric pain, but also great tenderness on pressure over a limited area an inch or two below the sternum, suggesting organic stomach disease. We do not know how and where this pain and tenderness are caused, and it is not our intention to inquire here into its nature. The same symptoms occur, however, in some persons with enormously excessive uric-acid excretion without excessive intestinal putrefaction, and, in other cases, where such putrefaction exists, have cleared up under treatment which did not affect the putrefactive products in the urine. We may conclude, therefore, that these symptoms—epigastric pain and tenderness—probably are in no wise dependent on intestinal putrefaction, even though they may be of intestinal origin in some cases.

Another symptom of frequent occurrence in cases where intestinal putrefaction is excessive and referred to the epigastrium is a feeling of emptiness, described by some patients as a "gone feeling." In some patients this is a very prominent and distressing symptom. The feeling is usually intermittent, and is apt to be particularly pronounced when the patient is tired, especially late in the afternoon. An empty stomach is a condition favorable to its development, and the taking of food usually relieves the sensation, at least for a time. That an empty stomach is in some cases not essential to its production is shown by the fact that a considerable quantity of food may give relief for only a few minutes. According to Golding Bird this symptom also may be due to the too rapid passage of food into the duodenum, for this feeling of faintness, together with

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fatty acids. Here there was probably an excessive fat-splitting action on the part of the fermentative bacteria, due probably in this case to the reduction in bile. See Biedert.

* Some work has been done which indicates that after severe diarrhœa the ethereal sulphates are apt to be greatly reduced in amount. See S. 7. Bartoschewitsch. Zur Frage über das quantitative Verhalten der Schwefelsäure und der Aetherschwefelsäuren im Harn bei Diarrhoen. *Zeitschrift für physiologische Chemie*, 17. Band, 1. Heft, 1892. Also E. Baumann. Zur Frage der Aetherschwefelsäureausscheidung bei Cholerakranken. *Zeitschrift für physiologische Chemie*, 17 Band, 5. Heft, 1893.

† Some patients have been able to judge of the rapidity of this progress by the appearance in the fæces of spinach taken with the food. It is probable that food normally passes through in somewhat less than twenty-four hours.

* On Duodenal Indigestion. *Lancet*, 1890.

flushing of the face, rapid pulse, etc., made its appearance in a case of jejunostomy when from fifteen to twenty ounces of food were introduced directly into the intestine, but did not appear when the quantity mentioned was much reduced. But, whatever may be the origin of this sensation, whether it be gastric or duodenal, it is certainly not directly related to excessive intestinal putrefaction. This is shown by the fact that it often occurs in cases where putrefaction is not excessive, and that in other cases it is relieved without any corresponding lessening of the putrefactive products in the urine. In these respects the symptom resembles epigastric pain, with which it is not rarely associated. It is related to epigastric pain in still another way—namely, in its frequent occurrence in persons who are excreting an excessive amount of uric acid, and in the relief of both symptoms when the diet is so altered as to diminish the uric-acid output materially. These facts lead one to suspect that both epigastric pain and the sensation of goneness may be due at times, and in part at least, to imperfect or perverted digestion in the small intestine, notwithstanding the absence of any relation to excessive putrefaction in the intestine. In other words, we must be prepared to recognize the existence of intestinal indigestion without excessive intestinal putrefaction. We do not wish to be understood to mean that epigastric pain and faintness and uric-acid excess are conditions necessarily dependent on intestinal indigestion. It is highly probable that all these conditions may depend sometimes on disturbance limited to or at least initiated in the stomach. Stomach indigestion is associated more often than not with intestinal indigestion, and the defective preparation of the food in the stomach for intestinal digestion, through defective secretion, for example, of hydrochloric acid, is thought to be a cause of intestinal indigestion and of excessive putrefaction.

In this connection it is to be also remembered that gastric hydrochloric acid normally exercises a retarding influence on bacterial activity in the small intestine, and that hence a diminished secretion of this constituent of the gastric juice constitutes a condition favorable to putrefactive processes.

The digestive process is, however, more largely carried on in the intestine than in the stomach, and there is reason to think that in most cases where excessive uric-acid output depends on digestive derangement it is due chiefly to intestinal indigestion.

The only remaining local symptom of intestinal indigestion is nausea. Nausea, like vomiting, is certainly more often a gastric than an intestinal symptom. But cases are occasionally met with in which nausea, lasting perhaps several hours daily, is accompanied by symptoms, such as flatulence and clay-colored stools and abdominal pain, which prove the existence of intestinal indigestion, and unaccompanied by any symptoms that point to gastric indigestion (acidity, heartburn, pyrosis, gastric flatulence). This nausea, which under these circumstances may be a most distressing condition, is quickly relieved by a diet (such as an exclusive meat diet) which relieves the other evidences of intestinal indigestion. Nausea of intestinal origin probably stands in no direct relation to the element of excessive intestinal putrefaction, though it frequently is associated with such excess.

The remote symptoms of intestinal indigestion are exceedingly numerous, and occur in combinations so varied as to baffle adequate description. Some of the following symptoms are usually associated with the local symptoms of intestinal indigestion that have just been referred to: Malaise, habitual or occasional; lassitude; aversion to exercise, which rapidly fatigues; involuntary muscular twitchings (occasionally observed), especially of the muscles of the back; flushing of the face, particularly after fatigue or after food; cold and moist extremities; irregular and habitual rapid heart action, perhaps attacks of tachycardai; drowsiness during the day; insomnia at night; hypochondriacal periods, or periods of slight mental depression; impaired appetite; loss of weight; periods during which there is very frequent micturition. Most of these symptoms, when continued, are the symptoms of neurasthenia, and there can be no doubt that chronic intestinal indigestion is one of the most frequent and effective causes of the neurasthenic condition. When we come to inquire into the relation of the remote symptoms enumerated above to the state of excessive intestinal putrefaction so often the important factor in intestinal indigestion, we find the task a difficult one, for we find the facts to be as follows: 1. Many of the remote symptoms enumerated occur in persons in whom there is no indication whatever of intestinal putrefaction in excess, but in whom too much uric acid is being excreted, and who have some of the local signs of intestinal indigestion. 2. There are cases of intestinal indigestion in which the products of intestinal putrefaction are in excess, but in which the remote symptoms enumerated are not pronounced. These facts, in the form just stated, might lead us to think the occurrence of excessive putrefaction, with its remote symptoms, to be accidental and not expressive of any causal relationship. When, however, the following considerations are borne in mind, we see that there is no ground for entertaining this view, for (1) the remote symptoms which occur where there is intestinal indigestion without excess in the putrefactive products are slighter in degree than when such excess becomes associated with it, and (2) remote symptoms are seldom or never entirely absent when excessive putrefaction is present, and are usually very pronounced when such excess is large. But, while we must recognize the fact that the products of excessive intestinal putrefaction are related in some way to the occurrence of the remote evidences of intestinal indigestion, it must be owned that we can not distinguish clearly between the symptoms that occur in this association and those that arise where the intestinal indigestion is unassociated with such excess, but with too large a uric-acid output. It may be that a difference exists in the nature of the symptoms in the two sets of cases—indeed, it is likely—but much more extended study is required to bring it out.

It has seemed as though mental depression was especially likely to occur when the ratio of the sulphates is very low (lower than one to five), and it is possible that this is so; but the same symptom has been noted with very high uric acid and no abnormity in the sulphates, and occasionally the sulphates run very high without appreciable mental depression.

We are likewise in the dark as to the manner in which the remote symptoms arise in cases where the putrefactive products are present in excess, and in the present state of our knowledge a discussion of the possibilities is futile. It may, however, be pointed out here that there does not seem to be much likelihood that the ethereal sulphates are in themselves responsible to a considerable degree for the remote symptoms.* It is more probable that these symptoms depend largely upon the absorption from the intestine of toxic substances formed there *coincidently* with and in consequence of the putrefaction, of whose extent the ethereal sulphates are the index. At the same time we are in no position to deny the possibility that the various aromatic substances excreted as sulphates are in themselves capable of exerting some toxic effects upon the organism, and it is not unlikely that under some circumstances this influence may even be considerable.

One variety of the occasionally remote symptoms deserves special notice—the ocular symptoms. In Case II there was developed a paralysis of the left sympathetic nerve during a period of acute gastro-intestinal indigestion accompanied with fever and prostration. The development of sympathetic palsy at the time of an acute digestive disorder traceable to an indiscretion in diet may have been mere coincidence. It occurs to one, however, that the transient disturbance in function in the sympathetic may have been due to the absorption from the intestine of toxic substances generated within it. In this instance there is the notable circumstance that the eye affected is upon the side of the recurrent supraorbital neuralgia which has been a feature in the case, and, further, that at the time when the palsy developed there was a sharp attack of supraorbital neuritis upon this side.

The following case of ophthalmoplegia, in which the paralysis came on during an acute gastro-intestinal disturbance occasioned by the use of cheese, is highly suggestive in this connection. Unfortunately, no studies of the urine were made, and we can not express any opinion as to the existence of excessive intestinal putrefaction at the time of the attack. This case occurred in the practice of Dr. George W. Jacoby, to whom I am indebted for the use of the following history:

M. B., male, aged forty-four years. Well until September 10th. On the evening of that day he and his wife went to a restaurant and ate Swiss cheese and sausage. Remarked that cheese was not good. He ate more than his wife. During the night his wife complained of nausea and vomited undigested cheese and sausage; he also complained of nausea, but did not vomit. Following day, nausea, loss of appetite, coated tongue, constipation. Toward evening, faintings, vomiting, slow, weak pulse; almost in a state of collapse; stimulants; castor oil. Copious evil-smelling movements for several days, pains, and great prostration.

September 15th.—Great dizziness and *diplopia*. Says he has seen double, off and on, for several days. Examination: Almost complete external ophthalmoplegia, both sides, left more than right; the rectus superior seems to be less involved than other muscles. Pupils react normally; nothing else; facial, hypoglossal, special senses, reflexes normal; gradual improvement.

October 1st.—Complete restitutio.

In a recent study of the ætiology of oculomotorious paralysis, A. Dalichow* calls attention to the occurrence of ocular palsy after the use of spoiled meat, especially sausage meat. The extent and distribution of the paralysis appear to vary with the amount of the absorbed poison. When this is slight the paralysis involves especially the intrinsic ocular muscles, and in the severest cases some of the external muscles. In connection with the cases here reported the following notes of the symptoms in a case of sausage poisoning reported by Leber are of interest:

A short time after the ingestion of the sausage meat the patient began to suffer from nausea and vomiting, great thirst, dryness of the throat, and discomfort in the joints. Next day there were stoppage of the salivary secretion and dry and white skin. At the same time ocular symptoms appeared—stoppage of lacrymal secretion, ptosis, double vision, mydriasis, and paralysis of accommodation. These ocular symptoms persisted for some time after the disappearance of the general symptoms.

(*To be continued.*)

THE

POLYMORPHIC EXCRESCENCES OR VEGETATIONS OF THE MARGIN OF THE ANUS:

THEIR NATURE, CAUSE, PATHOLOGY, DIAGNOSIS, AND TREATMENT

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The writer, in selecting this particular subject for discussion on the present occasion, is moved to do so from the fact that these abnormal growths are often of a painful and distressing nature, and their gravity is not generally appreciated as it should be; hence they are frequently neglected, being looked upon as apparently trivial in their nature and consequences, and from the fact, too, that they are often the pathognomonic sign or evidence of some serious disease within the rectum, such as ulceration, stricture, hæmorrhoidal tumors, syphilis, epithelioma, etc., and also from the fact of their erroneous denomination, classification, and distinction as external hæmorrhoidal tumors by some authors.

In the course of his remarks the writer will endeavor to show what the disease called hæmorrhoids really and truly is, and also give the etymology, signification, and application of the words *hæmorrhoids* and *piles*, all of which, it will be perceived, are important to the exposition and to the just understanding of the subject, and to conclude with a few observations upon the medical or curative treatment of the hæmorrhoidal disease.

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* Note the large excretion of sulphates from the use of salol, etc., without symptoms.

* Aetiologie und ätiologische Diagnostik der Oculomotoriusparalyse. *Zeitschrift für klin. Med.*, Band xxii, Heft 516, 1893. Accommodationslähmung und sonstige Störungen der Augen bei Wurstvergiftung. *Archiv f. Ophth.*, xxii, 2, S. 236, 1880. See also Scheby-Buch. Bericht über 38 Fälle von Accommodationslähmung aus den Kieler Kliniken, darunter befinden sich 5 Fälle solcher durch Wurstvergiftung. V. Graefe, *Archiv f. Ophth.*, xxvii, 1, 265–291, 1871. Groenour, A. Fünf Fälle von Accommodationslähmung bei Fleischvergiftung (Schinken) aus der univ. Klinik f. Augenkr. in Breslau. *Klin. Monatsbl. f. Augenheilkunde*, 28, Mai, 1890.

Description.—The margin of the anal orifice and its immediate vicinity are very liable to a number of abnormal cutaneous growths or excrescences which present many and varied forms, shapes, and figures, and which usually sprout out from the fine and delicate skin about the anus. These vegetations are not, however, absolutely peculiar to the anus alone, for in the female, besides the verge of the anus, these very same kinds of growths are often met with in abundance about the pudendum; and when they are of a venereal character they may be observed upon the glans penis, on the prepuce, or on the labia and vagina. The anal excrescences are sometimes so numerous as greatly to interfere with the normal functions of the parts. The writer once treated a lady whose anal orifice was almost completely filled with these excrescences, which had seriously interfered with defecation. Sometimes, however, they are few in number, and are but seldom single; they are generally small and never attain a large size; their color is a pale red, but they usually are of the color of the skin or muco-cutaneous tissue from which they sprout. They are often of a soft or fragile texture, easily broken and readily made to bleed by violence; sometimes, however, they are are quite hard, firm, and elastic, being either smooth, rough, or furrowed on their surface; they consist chiefly of condensed and hypertrophic integument. When in a quiescent state, they seem to possess but little vitality, hence they are endowed generally with but moderate sensibility; they are sometimes attended with painful fissures or ulcerations at their bases, and with a purulent discharge from the same; they but seldom exist alone, but generally coexist with either external or internal hæmorrhoidal tumors, or with both. Occasionally, when one or two exist, they are in truth the cuticular remains of what were once external hæmorrhoidal tumors, the cavities of which had become obliterated, leaving nothing but firmly condensed flaps of skin. They are occasionally venereal, but by no means always or frequently so, as some authors have declared. The writer, only in private practice, however, has seen but five marked cases of venereal growths at the anus during many years' practice, and they all occurred in females, who doubtless, for obvious reasons, are more exposed than men to this particular growth at the anus.

Fanciful Appellations.—In consequence of the great variety of forms these excrescences present, the Greek, Latin, and Arabic authors many ages ago bestowed upon them different appellations, according to their peculiar shape, appearance, etc., such as *condyloma*, *verruca*, *crista*, *porrus*, *sycoma*, *thymion*, *myrmecion*, *ficus*, *marisca*, etc. These different names, as distinctions of the circumanal cutaneous excrescences, impart no useful information as to their real and exact nature, cause, and treatment, and are in this particular instance worse than useless, and only tend to confusion; yet strange, passing strange, some quite recent authors denominate and classify these same cutaneous excrescences as so many external hæmorrhoids or piles. Now, such distinctions may be necessary and proper for the dermatologist to diagnosticate a precisely similar cutaneous disease on other and different parts of the body, but he would not, regardless of the locality, be very apt to denominate such as hæmorrhoids or piles.

These anal excrescences are minutely described by Hippocrates and Celsus, and both these illustrious ancients recognized the difference between the true hæmorrhoidal tumor and them. M. Lieutaud, when speaking of tubercles or excrescences of the anus, was aware of the importance of the distinction between them and true hæmorrhoidal tumors. He says: "Ces tubercules qu'on doit bien distinguer des hémorrhoïdes frétries occupent les bords de l'anus." (*Précis de la médecine pratique*, 12mo, Paris, 1776.)

The writer would here observe that with regard to the two Latin terms *ficus* and *marisca*, they both have reference to the form, shape, or appearance of the hæmorrhoidal tumor or excrescence which it sometimes presents. Each of these terms means a fig; the latter, however, means a large, blasted, and unsavory one. The celebrated Latin poet Martial uses the word *ficus* in the sense here indicated by making a jest upon the dual meaning of it, as presented in the following lines:

"Cum dixi ficus, rides quasi barbara verba!
Et dici ficos, Cœciliane, jubes.
Dicemus ficus quas scimus in arbore nasci:
Dicemus ficos, Cœciliane, tuos." *

Martial again uses the word *ficus* in his epigram entitled *Ephippium*, in which he advises the coursers not to ride bareback lest it cause hæmorrhoids:

"Strangula succincti venator sume veredi;
Nam solet a nudo surgere ficus equo." †

The great Latin poet Juvenal employed the word *marisca* to designate hæmorrhoids in the same sense in which Martial used the word *ficus* to designate the same, as will be observed in the following lines:

. . . "Sed podice lævi,
Cæduntur tumidæ, medico riderite, mariscæ." ‡

The two Latin vernacular terms, *ficus* and *marisca*, were, however, not generally used by the Roman physicians of that period to designate hæmorrhoids, but were subsequently added to the above-mentioned class of fanciful appellations.

Ætiology.—These anal excrescences are often caused by diseases within the rectum, and it is of great importance that they should not be overlooked, but strictly attended to; by irritation or inflammation of the fine and delicate skin and muco-cutaneous tissue about the anal orifice; they are also frequently the result of friction, compression, or contusion, or of erosion arising from filth and acrid secretions, or from the venereal virus.

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* *Epigrammatum medicæ philosophicæ*, etc., lib. i, epig. 66, et lib. viii, epig. 71, 4to, Venetiis, 1657.

† *Op. cit.*, lib. xiv, epig. 86.

‡ *Satiræ: cum commentariis Caroli Fred. Heinrichii*, vol. i, p. 13, sat. 11, vers. 12 et 13, 8vo, Bonnæ, 1839.

Origin and Structure.—These singular vegetations originate in the cutis, about the verge of the anus, and are alone the production of the cuticular covering of the part, without involving the cellular tissue beneath it. While the external hæmorrhoidal tumor is imbedded or seated in the cellular tissue beneath the skin, which it ultimately involves, the anal excrescence is seated only in the skin itself or in the contiguous muco-cutaneous tissue. Now, as regards the origin, structure, and formation of the external hæmorrhoidal tumors, they are those which appear entirely on the outside of the anus and beyond its margin. They are covered by the common integument, and when small can be distinctly felt to be imbedded beneath the skin in the cellular tissue, and are the result of extravasated blood in the subcutaneous cellular tissue of the part, there deposited, circumscribed, accumulated, and retained, the effusion having been caused by the rupture of a morbid venula or venous capillary, consequent sometimes upon violent straining efforts to expel indurated fæces, as well as upon other causes. It is in this manner then that a hæmatoma is suddenly formed, which is the first stage or commencement of the external hæmorrhoidal tumor. Or it may in truth be further said that a tumor thus formed in the subcutaneous cellular tissue is a thrombus, formed not in but immediately on the outside of the blood-vessel which supplied the effused sanguineous fluid to make it. On incising such a tumor and emptying it of the blood clot, which is all it contains, a sac will be seen which is lined with a smooth, soft, and delicate membrane. In making the incision and removing the clot, which is easily done, no hæmorrhage or any other bad effect follows, as the writer has demonstrated in numerous instances, and this it seems to him would not have been the case had a veritable blood-vessel been thus treated.

These tumors are sometimes tense and hard, at other times they are soft, and they never bleed. In the first stage, and before regular organization has taken place, they are purely sanguineous, and their color, as seen shining through their thin and transparent envelope, is bluish, deep red, or opaque. When the same kind of tumors are serous their color is pale and almost transparent, they are highly elastic, easily compressible, rapidly produced, and are almost always external. In process of time, however, the primitive color of these tumors disappears altogether, in consequence of their cuticular covering becoming thickened and blended as a part of them.

Differential Diagnosis.—The writer having already plainly shown that the polymorphic excrescences of the anus and the external hæmorrhoidal tumors differ essentially and completely, in their origin, formation, and structure; and as both the disease and the treatment involve considerations of much higher importance in the one case than in the other, he will therefore still continue to add further evidences to prove that these anal growths are not hæmorrhoids, as they have been represented, and in attempting this he will endeavor to show too that this particular subject in controversy is not so unimportant and so trivial as some, who ought to know better, have represented it. Now, the first step which the writer will take for the further elucidation of this subject will be to show what the hæmorrhoidal disease really and truly is, and also to give the etymology, signification, and application of the words *hæmorrhoids* and *piles.*

In order, then, to understand what the hæmorrhoidal disease really is, a minute inspection of it in its origin must necessarily be made; for, in process of time, additional morbid changes with serious complications may take place, and which may completely alter the primitive state of it, so that a true diagnosis of it might be difficult to determine.

The writer holds and maintains that the disease which has been denominated hæmorrhoids or piles is an inflammatory state of the hæmorrhoidal blood-vessels themselves, especially of the arterial and venous capillaries in the inferior portion of the rectum, from some exciting cause, producing excessive relaxation of their parietes; and that this in brief is the essential, the primitive, or substantive disease, regardless of the cause or causes which produce it; and besides, he further maintains that this disease does not consist of either tumors alone or of hæmorrhage alone, or of both combined; these do not constitute the affection, but are merely the effects or the consequences of it, and are to be considered as only accessory, accidental, or a more or less direct result of it, and can not therefore be made to characterize it; for it is a positive fact that neither tumors nor hæmorrhage often exist in any stage of the disease, and in many instances neither one nor the other nor both ever appear during the whole attack; but authors generally ignore this fundamental fact, and present for treatment the symptoms, the effects, or the complications of hæmorrhoids as the disease itself. With special reference to hæmorrhage, it does not in any sense constitute the hæmorrhoidal disease or any part of it, but may, when it occurs, be taken as an uncertain symptom of it. Indeed, bleeding, regardless of its source, is never a disease, but merely an evidence or a symptom of it—either of disease in the part itself from which it proceeds, or of disease in some remote part or organ; hence, no tumor, no hæmorrhage whatever can justly be called hæmorrhoids, unless in close and intimate connection with the morbid hæmorrhoidal blood-vessels themselves. Now, these polymorphic anal excrescences have no intimate, no direct connection or communication whatever with the hæmorrhoidal blood-vessels, whether diseased or not, and consequently are not hæmorrhoidal tumors, for when such tumors present themselves they are always the result of the hæmorrhoidal disease, consisting of a morbid condition of the veins or venous capillaries of the inferior portion of the rectum, and the tumors resulting from this cause are regular organized growths, sustained and supported by continuing in direct communication with the morbid vessel or vessels which caused them. Such tumors, as before observed, are consequent upon the effusion of blood from the morbid vessels into the cellular tissue of the part, where, from this blood and cellular tissue, organized tumors are sooner or later formed; for it must be admitted that all true hæmorrhoidal tumors are imbedded or have their seat, when external, in the subcutaneous cellular tissue, and when internal, in the submucous cellular tissue. Indeed, the cellular parenchyma is never absent in true hæmorrhoidal tumors, it being essential to their very formation and subsequent development.

It is considered of sufficient importance here to give the names of some among the most distinguished men of our profession who held and maintained the cellular origin of all hæmorrhoidal tumors. Their opinions are worthy of the highest credence because they were formed alone from actual dissection: Cullen, Kirby, Abernethy, Harrison, Récamier, Chaussier, Lisfranc, De Larroque, Ribes, and Richter. It is admitted, however, that there are a few equally distinguished authors who have taken different views of the origin of hæmorrhoidal tumors. This particular subject has been thoroughly examined in the sixth chapter of the writer's treatise on the hæmorrhoidal disease, published in 1884.

The writer has now very briefly and distinctly shown what he believes the true hæmorrhoidal disease is; indeed, from the foregoing premises he holds that even the morbid relaxation, from whatever cause, of the hæmorrhoidal veins and capillaries, both arterial and venous, is alone sufficient for the explanation of the phenomena of the hæmorrhoidal disease. And he has also shown what he conceives the true hæmorrhoidal tumors are, simple and isolated from all other tumors or excrescences, whether coexisting with them or not.

The Term Hæmorrhoids.—The word hæmorrhoids is derived from the compound Greek word *αἱμοῤῥοίς*, which is formed from *αἷμα*, sanguis; and *ῥοίς* is derived from *ῥέω*, fluo; consequently, it signifies a flux or a flow of blood—nothing more, nothing less. Now, this word, regardless of its etymology and signification, has been, and even now is, applied to all manner of affections, whether attended by hæmorrhage or not; some of the ancients as well as the moderns, and even some present authorities, have applied the term hæmorrhoids to vascular dilatations, varices, hæmorrhages, tumors, and to cutaneous excrescences or vegetations situated about the anal orifice, etc. Indeed, there is no name of any disease in the whole medical vocabulary in which such unlimited license has been indulged in as in the promiscuous application of the word hæmorrhoids. Inasmuch, however, as the blood-vessels of the rectum consist of the superior, middle, and inferior hæmorrhoidal—so called by the ancient Greeks, doubtless in consequence of the frequent irregular hæmorrhages from the rectum—no disease or hæmorrhage should therefore have been denominated hæmorrhoids unless it pertained exclusively to those vessels; for if the term hæmorrhoids had heretofore been restricted to affections of the hæmorrhoidal vessels alone, much obscurity, confusion, and perplexity in the use of it might have been obviated. Under the term hæmorrhoids authors have confounded affections of every kind; they have used the term not only to signify every complication of the true hæmorrhoids, but also of affections of an entirely different character; hence they have treated of hæmorrhoids of the mouth, of the palate, of the throat, of the nostrils, of the ear, of the uterus, of the urethra, of the kidneys, of the bladder, etc. Now, upon this principle they might with great propriety lengthen this their already extended catalogue indefinitely, for there is no part of the body which a similar cause might not affect. It would be supposed that the ideas which the word hæmorrhoids naturally suggests would never have permitted its application to those various affections above enumerated, whatever analogy might have been found to exist between them; for it should be observed that the term hæmorrhoids, which is so defective and inappropriate in its ordinary application, is, if possible, decidedly more so when applied to the analogous affections of the uterus, the urethra, the bladder, etc. The learned Alberti calls all such examples extraordinary or displaced hæmorrhoids (*Dissertatio de hæmorrhoidium insolitis viis*, Halæ, 1722).

With regard to the phrase *hæmorrhoids of the bladder*, the writer will here give an amusing instance in which this expression was employed very dexterously. It is well known that the late M. Nélaton, physician to the late Emperor Napoleon III, used on a certain occasion, when treating him during his last illness, the expression *vesical hæmorrhoids* in a very adroit manner. This very able and distinguished surgeon, believing that the emperor's disease was fungous tumors or excrescences of the bladder, or some other grave affection, and wishing to conceal from the friends of his imperial patient, as well as from his majesty himself, the very serious nature and gravity of his malady, used, when strongly urged to give a diagnosis, the very ingenious euphemism *hémorrhoïdes de la vessie*, knowing very well that hæmorrhoids were a disease whose innocuousness was familiar to every one.

The writer is well aware of the difficulty and the almost impossibility of ever reforming old names, or changing them for new ones, however absurd their signification and application might be. Instead, therefore, of exchanging the word hæmorrhoids, the use of which has been sanctioned for ages, for one more expressive and comprehensive, as well as to make as little change as possible, or as the nature of the case will admit, the writer would respectfully suggest that the adjective form of the word should always be used, as hæmorrhoidal disease, hæmorrhoidal tumors, hæmorrhoidal congestion, hæmorrhoidal blood, etc. These terms have at least some reference to the seat of the disease or part affected of the same name, and on that account can be employed with much greater propriety than the word hæmorrhoids can. The writer considers it proper to remark here that Hippocrates restricted the use of the word hæmorrhoids solely to a flow of blood from the veins of the anus, and speaks of it as being an affection of the anus only. "*Excretiones per ora venarum quæ sunt in ano hæmorrhoïdas vocant*" (*De Alimento liber*). Galen also, like his great prototype, designated under the name hæmorrhoids a flux or a flow of blood from the veins of the rectal portion of the large intestine (*Definitiones medicæ*). The writer could here add other able and distinguished ancients who held the same views. The error of these ancients consisted in considering the hæmorrhage to be the real disease itself, an error which exists to some extent even at the present time; and furthermore, from the remotest antiquity to the present day, the word hæmorrhoids has been used by the largest majority of authors, including medical lexicographers, exclusively to designate tumors of the rectum and anus, whether attended by hæmorrhage or not, as the disease itself. The error of these authors consists in maintaining that the tumors are the real disease. It will be perceived, however, that those who hold that the hæmorrhage from the anus alone is the disease and those who declare that the tumors alone are the disease are both in error alike, yet their theory is more plausible and contrasts widely with that of those who apply the word hæmorrhoids promiscuously to tumors or hæmorrhage alike, in different parts of the body, as has been shown above.

The writer has now briefly exhibited the fact that authors have presented the symptoms or the complications of the disease called hæmorrhoids—namely, either hæmorrhage, vascular dilatations, varices, or organized tumors—as the veritable disease itself, whereas it can neither be characterized by bleeding alone, by vascular dilatations, varices, or by organized tumors alone, nor, indeed, by all these combined, for bleeding may occur without dilatations, varices, or organized tumors, and each one of them may exist independently of the other.

It seems to be proper here that something should also be said regarding the signification and application of the scriptural word *emerods* or *emeroids*, as adopted in the English version of the Hebrew Bible, which was ordered and translated under the auspices of King James I. The first mention of this word occurs in Deuteronomy, xxviii, 27, as follows: "The Lord will smite thee with the botch of Egypt, and with the emerods." The word emerods is evidently a corruption of the Greek word αἱμοῤῥοΐς, and has the same signification—namely, a flux or a flow of blood. Now, the question arises, Does the word emerods correctly and truly represent the disease or plague which the Lord through Moses threatened the Jews if disobedient? Is it a correct rendering of the Hebraic word or words which Moses used to designate this affliction? Was this divine punishment to consist purely of a flowing of blood, as the word emerods denotes, or was it to consist of something else? According to the most profound authority—and authority is everything in a dead language—the Hebraic words *Apholim* and *Tehorim* are the words which Moses used in describing or indicating the threatened disease. These same words were used by Samuel, three centuries subsequently, in describing the same disease or plague which the Lord had inflicted upon the Philistines for taking the ark of the Lord, as recorded in the fifth and sixth chapters of the first book of Samuel.

It is agreed by the most approved authorities that the word *Apholim* means the disease, as tumors, swellings, or varices, and that the word *Tehorim* signifies the part affected, as the seat, the fundament, or the anus, and that both words used conjointly signify tumors, swellings, or varices of the fundament or the anus. The learned Gesenius translates Deuteronomy, xxviii, 27, into German, "*Geschwülste am After*"—that is, tumors or swellings of the anus (*Hebräisch-Deutsches Handwörterbuch über die Schriften des alten Testaments.* 8vo, Leipsic, 1810). This exposition is doubtless the true one, inasmuch as it corresponds exactly to the disease when attended by tumors. It is thus made evident that the Hebraic and the Grecian definitions of this disease do not agree in any one particular.

It is worthy of remark that there is no record or evidence whatever in the Bible to prove that the hæmorrhoidal plague with which Moses threatened the Israelites was ever afterward visited upon that peculiar people as a divine punishment. But the Lord did inflict it upon the Philistines, as is graphically described by Samuel in the fifth and sixth chapters of his first book, as above stated.

The Term Piles.—Why the word *piles*, the plural of pile, should ever have been selected as a technical term to indicate the hæmorrhoidal disease is difficult to imagine, for there is nothing whatever in its etymology and signification that is at all expressive of any property or thing appertaining to that disease. The word pile is from the Latin *pila*, a ball, and from the Greek πῖλος, a globe, a ball. This word can not, therefore, with any reason or sense of propriety, be applied to or used to designate any excrescences or tumors, regardless of their locality or whether they bleed or not, unless such are round or globular; hence it should never be employed to designate the hæmorrhoidal disease, which does consist of tumors or excrescences; but those who maintain that it does can use it to distinguish all the round excrescences or tumors from all those that are not globular.

The name *piles* is misleading when used to designate the hæmorrhoidal disease, and it would be far preferable to use a term having no signification at all, especially as we are told that the nomenclature of this disease is now so well understood and established that it is useless even to suggest any change in the application of the term. According to this notion, however, a word, as before observed, without any meaning whatever will answer just as well to denote a disease as a significant one, doubtless upon the principle that a rose is a rose and smells just as sweet under any other name. The truth is that in proportion to our knowledge of the seat and the nature of the disease will be our ability to give it a clear and expressive name which will at once denote it. The terms phlebitis, arteritis, appendicitis, proctitis, rectitis, iritis, cystitis, and cellulitis are clear and expressive names, denoting both the seat and the nature of the disease. But it seems useless to expend any more words on the misapplication of the word piles in this particular case, for there is no certainty that they will be heeded. It has always been said by some that medicine is not a science and can never be. Now, if this is really true, then let us at once endeavor to the best of our ability to approach as near as possible to the scientific pole; or, in other words, if we can not be scientific, then let us try and be as scientific as we can.

A recent author has classified the circumanal excrescences with the other external tumors as hæmorrhoids, but, as they do not bleed, he on that account objects to the word hæmorrhoids and prefers the term piles; but there is nothing whatever in that word which designates the absence of hæmorrhage. Now, by comparing this author's substitution of the word piles for that of hæmorrhoids and the reasons which he assigns for the change, one may well ask, "*Cui bono?*"

From remote antiquity hæmorrhoids have always been distinguished into bleeding or open, *hæmorrhoides fluentes vel apertæ*, and into blind, *hæmorrhoides cœcæ vel non fluentes*. The Germans have the same division into bleeding, *fliessenden Hämorrhoiden*, and into blind, *blinde Hämorrhoiden*.

Treatment of the Anal Excrescences.—The surgical operation for the removal of these vegetations is so very simple that it scarcely deserves the name. It is important, however, in performing it not to include in it too much of the integument surrounding the anus, for, if the cuticle is too much encroached upon, stricture of the anus will be the result. The operation is performed by seizing each excrescence with a small forceps, drawing it out slightly, and snipping it with a scissors curved on the flat, or with the knife, and then dressing the cut like any other fresh wound.

It is important and essential in treating this affection to endeavor to discover the primary cause of it, and to treat or remove that, together with the effect, at the same time; for, after the removal of the excrescences, the cause which produced them, still existing, may again cause them to repullulate. When the anal excrescences coexist with internal hæmorrhoidal tumors, by the removal of these, those sometimes spontaneously disappear, as the writer has observed several cases of the kind.

The ancients, in treating this affection, employed severally the knife, the scissors, the actual and the potential cauteries, and the écraseur; and beyond these several ancient measures we of the present day know no others in the treatment of this affection. Some of the ancient methods, however, of extirpating these excrescences were indeed shockingly rude—such as pinching, crushing, or tearing them off, etc.; such measures might therefore be appropriately denominated torsion, avulsion, evulsion, or *écrasement*. Hippocrates himself advised and adopted the very unique method of removing these excrescences, when they were of a soft or friable nature, by pinching them off with the fingers, and he makes a long and very curious statement of the manner in which the operation should be executed, all of which is presented in his special classical treatise, Περι Αἱμοῤῥοιδων (*De Hæmorrhoidibus*).

The Medical Treatment of the Hæmorrhoidal Disease.—The medical or curative treatment of the hæmorrhoidal disease is scarcely ever mentioned or alluded to by authors; their whole attention seems to be directed to the surgical treatment of the hæmorrhoidal tumors, which are not the disease, but the mere offspring or offshoot, as has been shown; so that by removing the tumors alone the morbid blood-vessels which produced them would still remain to repeat them. Some of the rectal specialists, however, say positively that by removing the tumors alone by knife, ligature, or Smith's clamp the cure is radical. But in order to make the cure radical by surgery alone, the morbid blood-vessels must also be removed, either by knife or scissors, or both; such operation is now advised and performed by a few, and, however bad it is, it at least is consistent in that it removes both the cause and the effect at the same time.

The writer not only believes but knows that the hæmorrhoidal disease can be cured medicinally either before or after tumors have formed; but when they coexist it is all-important that the tumors should be removed surgically by either ligature, knife, or clamp, unless the successful treatment of their primary cause should have resulted in their removal. Indeed, when this disease is attended with tumors which are the effect of it, by curing the disease the effect may cease, upon the principle that by the removal of the cause the effect will cease; but the effect of a certain cause of long continuance may itself sometimes become a disease, and exist independently of the cause or disease which first produced it, so that the removal of the original cause in such a case will not remove the original effect, which has now itself become an independent entity. When this is the case both the cause and the effect should be successfully treated conjointly before the cure can be pronounced radical.

It has already been shown that the hæmorrhoidal disease consists in part of a morbid relaxation of the veins and venous capillaries of the hæmorrhoidal plexus, by which their capacity is increased and their contractile power diminished, so that they readily admit of overdistention and become engorged with blood or some of its elements. The principal indication, then, in the medical or curative treatment of this disease is to restore the lost tone and activity of the morbidly relaxed, debilitated, and engorged vessels, and, inasmuch as these can not unload themselves by reason of their asthenic state, they should be assisted to do so by the exhibition of such internal medicines as would tend to increase their contractile power and action, and thus enable them sooner or later to force out their superfluous contents, as well as to prevent any undue quantity of fluids from entering them. To fulfill this indication we have in belladonna, aconite, nux vomica, and ergot valuable remedies if properly directed, as the writer can most favorably testify; he has also used the iodide of potassium in large doses with equal success in the cases of the peculiar internal hæmorrhoidal tumors which very much partake of the nævoid structure and resemble erectile tissue, and have been denominated "*aneurysm by anastomosis.*"

Sometimes the vascular engorgement of the veins and capillaries is the result merely of a neurosis, and when this is the case the rational treatment should, of course, consist in the restoration of the nervous energy and of the proportionate calibre of these vessels.

One of the therapeutic measures which the writer has employed for a number of years with excellent results is dilatation of the anus and anal canal by the use of bougies of different sizes once or twice daily. If this treatment is judiciously executed before extravasation and organized tumors are formed, it may prove the means of destroying the morbid condition of the blood-vessels and overcoming any undue contraction of the anal sphincters, and thus prevent the further progress of the disease. The influence of the bougies in removing the morbid sensibility and in relaxing the rigidity of the sphincters, as well as facilitating the return of the blood from the turgid, congested, and varicose vessels, is often remarkably surprising, and if torpor of the rectum and obstinate constipation obtain, which are not unusual in such cases, it soon induces a natural action of the bowels, an object so very desirable in such instances.

The writer will conclude by remarking that the medical treatment, including prophylaxis, should never be neglected, even if the disease is attended by tumors; when such, however, obtain, then it may be absolutely important and necessary to remove the tumors surgically, and for this purpose some prefer and use the ligature, which has been the method of the writer for half a century, others use the knife and scissors, while others again use Smith's clamp and cautery, or the écraseur. Each of these methods finds advocates among able and distinguished medical men, and, as they are now valued, no one should be censured for electing either one or the other, for to each must be granted equal rights, as these operations now rank in the profession.

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184 Centre Avenue, *June 1, 1895.*

THE PROGNOSIS OF OPERATIONS UPON THE MASTOID PROCESS OF DIABETIC PERSONS.[*]

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From Professor Kuhn's and Dr. Körner's articles in volume xxix of the *Archiv für Ohrenheilkunde* (1890) I have gleaned the few facts which follow.

Medical literature contains very few reports of mastoid disease occurring in persons affected with diabetes mellitus. Apparently the earliest case on record is that reported by Toynbee (*Diseases of the Ear*, London, 1860). This was a case of a diabetic patient, twenty-nine years of age, who contracted an acute inflammation of the right middle ear, which spread to the mastoid process, caused severe pain in this region, and eventually terminated fatally after the development of vertigo and coma. At the post-mortem examination extensive caries of the mastoid process and perforative ulceration of the lateral sinus were found.

The next earliest report is that published by W. Roser in the *Deutsche med. Wochenschrift*, 1880. This was a case of "diabetic caries of the mastoid process" in a man seventy years of age. An immediate operation was advised and was to have been performed on the following day, but during the night the patient suddenly died. The immediate cause of death was not ascertained.

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[*] Read before the American Otological Society at its meeting in New London, July 16, 1895.

In the following year Raynaud (*Annales des maladies de l'oreille*, May, 1881) published the report of a case of acute inflammation of the middle ear in a diabetic patient (male) forty-seven years of age. The onset of the attack was characterized by intense pain in the ear and the escape of quite a large amount of blood from the external auditory canal. The patient died twenty-three days later under manifestations of great weakness and prostration. At the post-mortem examination the mastoid process was found to be extensively carious, and filled with pus and blood.

In Frerichs's classical work on diabetes, published in 1884, the statement is made that out of fifty-five post-mortem examinations of diabetic patients who had died from some disease of the nervous system, there was only one in which "otitis interna, with caries of the mastoid process and thrombosis of the lateral sinus (woman, thirty-nine years of age)," was found.

Kirchner reports (*Troisième Congrès international d'otologie*, Bâle, 1885) a case of well-marked acute mastoid inflammation that occurred in a diabetic patient (male) twenty-two years of age. The symptoms were severe pain in the mastoid region, evidences of mastoid periostitis, and beginning cellulitis along the course of the sterno-cleido-mastoid muscle. An operation was performed, and the patient died five days later. At the post-mortem examination it was found that the caries had advanced as far as to the sigmoid fossa.

Schwabach (*Deutsche med. Wochenschrift*, 1887) reports the case of a man, forty-three years of age, who had been affected with diabetes mellitus for a period of six years, and who suddenly began to suffer from a violent pain in the ear due to an acute inflammation of the middle ear. The pain soon extended to the mastoid region. Then followed quite a long period of comparative freedom from pain in the affected locality. Finally, the pain again became severe, the facial nerve became paralyzed, and an operation upon the corresponding mastoid process revealed the existence of extensive bone caries. Bad-smelling pus filled the pneumatic cells in all directions. The facial paralysis gradually disappeared, and the wound healed only after the lapse of several months. Two years after he had recovered from the ear trouble he died from an attack of cerebral apoplexy.

Moos's case (*Deutsche med. Wochenschrift*, 1888) was that of a man, fifty-five years of age, who had had diabetes mellitus for a period of three years, and in whom symptoms of mastoid disease had developed five months previously. Operative interference was begun in the usual locality, but there was such a profuse escape of blood that it was thought best to abandon the operation. Seven days later an abscess was opened in the temporal region, and, three weeks later still, another one was opened. Complete recovery followed in the course of a few weeks. Moos examined the pus which escaped from the middle ear, in this case, and found it to contain both the *Streptococcus pyogenes* and *Fraenkel's diplococcus*.

To the preceding brief reports of diabetic mastoid cases Kuhn adds the histories of two of his own cases. In the first of these (male, fifty-four years of age, and of apparently robust health) the patient had had diabetes mellitus for about a year. After a severe cold he began to suffer from pain in one ear. Seven days later evidences of mastoid disease were observed. Chill on the twenty-second day of the ear attack. On the following day he had a decided hæmorrhage from the affected ear, the blood being of a noticeably dark color. After the hæmorrhage the purulent discharge, which previously had been profuse, ceased altogether. At the same time the patient became very dizzy. Soon afterward he had two chills, and then general convulsions; a few hours later he became comatose and died. At the post-mortem examination extensive caries of the mastoid, with ulceration of the dura mater and also of the wall of the lateral sinus, was found.

Kuhn's second case was that of a man, fifty years of age and seemingly in good general health, in whom first one mastoid and then the other became involved in acute inflammation. An examination of the pus that escaped from the middle ear revealed the presence of large numbers of both the *Streptococcus pyogenes* and the *Staphylococcus albus*. Fistulous openings developed in both external auditory canals and the relief afforded by this additional drainage eventually proved to be sufficient. At all events, no serious attempt was made to penetrate into either mastoid process, and yet at the end of a few weeks both ears had ceased to discharge and the hearing had in large measure been restored.

In the same volume (xxix) of the *Archiv für Ohrenheilkunde* in which Dr. Kuhn furnishes the facts which I have repeated here in a condensed form, I find the report, by Dr. Otto Körner, of another diabetic mastoid case. The patient was forty-seven years of age and of previous good health, and the diabetic condition was only discovered after the mastoid disease had become well established. The usual operation was performed and the patient made a fairly good recovery, the external wound healing completely thirteen weeks later.

The ten cases which I have reported here in the briefest possible outlines comprise all the published instances of mastoid disease occurring in diabetic persons which I have been able to discover. I ought to add, however, that my search has not been a thorough one by any means; but yet I believe that it has been sufficiently thorough to establish one or two facts of greater or less practical importance—viz., first, that disease of the mastoid process is likely to be a more serious affair in persons affected with diabetes mellitus than in those who are in an ordinarily healthy condition; and second, that the destructive processes within the temporal bone tend to advance at a more rapid rate in diabetic than in non-diabetic individuals.

Out of the ten cases reported above, there were seven in which operative interference was not resorted to. Five of the seven patients died—a mortality of seventy-one per cent. Three out of the ten were operated upon, and only one of these died—a mortality of thirty-three per cent. The four whose cases I shall report farther on were all operated upon. Two of these died and two recovered. Consequently, when these four cases are added to the other three, the mortality rises from thirty-three to forty-three per cent. The prognosis, therefore, in these diabetic mastoid cases is clearly not favorable. But if any one who is interested in the subject will take the trouble to read the detailed histories of the cases reported in the articles of Kuhn and Körner, and also those which are appended to this article, I think he will agree with me that in nearly every instance the operation was postponed until a comparatively late date. I fully believe that later statistics, covering a larger number of cases, will warrant the giving of a more favorable prognosis than the few data now at our disposal permit. But if my expectations are to be realized, it is imperative that mastoid operations upon diabetic persons shall be performed at a comparatively early stage of the disease in the temporal bone; that is, before the lateral sinus or the dura mater has become seriously involved.

Case I.—Male, forty-seven years old, a physician, and somewhat emaciated in appearance. On the 16th of April, 1895, he used the nasal douche with warm salt water. Shortly afterward pain developed in the left ear. Paracentesis of the membrana tympani was performed by his son on the following day. Only temporary relief from the pain. Free discharge from the middle ear. Pain soon increased in severity, and involved the entire side of the head, although the patient felt it chiefly in the mastoid region. On the 10th of May I saw him for the first time. There was then a little tenderness on pressure behind the left ear, but no redness or œdema of the skin. The discharge from the ear seemed to be abundant, and was distinctly purulent in character. Membrana tympani red and infiltrated. The posterior and upper cutaneous wall of the inner half of the canal drooped perceptibly.

On inquiry I ascertained that the patient had been affected with well marked diabetes mellitus for a period of at least two years, and that during the past year he had lost fully forty pounds in body weight.

Local antiphlogistic measures and rest at home were tried for eight days in the vain hope that the mastoid inflammation might thereby be relieved. Complete relief from pain was obtained, but the discharge still continued to be purulent in character and copious, the prolapse of the upper cutaneous wall still persisted, and there was no perceptible change in the degree of tenderness observed behind the ear.

The operation was performed on the 18th of May, under ether anæsthesia. The cortical portion of the mastoid process was found to be reduced in thickness to a mere shell of bone. Pus (inodorous) and granulation tissue filled, apparently, the entire process. After removing the contents of this large cavity, I proceeded to scrape its walls with a small and rather dull-edged Volkmann's spoon, in order to make sure that no diseased bone or mucous membrane should be left behind. While I was doing this, with the slender Volkmann's spoon held between my thumb and fingers as one usually holds a pen, I felt something give way on the inner and posterior portion of the cavity, and instantly there was an abundant but quiet welling up of very dark blood. From this circumstance I knew at once that I had broken through what was doubtless the ulcerated (but not yet perforated) wall of the sigmoid flexure of the lateral sinus. A temporary stuffing of simple gauze was inserted, and at the end of a few minutes it was removed in order that one of iodoform gauze might be introduced in its place. The temporary stuffing, it was found, had entirely checked the hæmorrhage.

May 19th.—Patient has constant nausea and is unable to keep anything on his stomach. Temperature normal. No chilly sensations.

20th.—Iodoform plug removed from the cavity in the mastoid process. No further bleeding. Wound looks healthy. Some headache. Iced milk retained, but nausea persists. Temperature still normal. Wet bichloride dressings, and wound douched once a day with a 1-to-2,000 bichloride solution.

22d.—Wound surface has a dirty appearance. The few granulating spots look unusually pale, as if the parts lacked vitality. Bichloride solution used in douching the wound to be increased in strength to 1 to 1,000, and the douching itself to be employed twice instead of once a day. The temperature still continues to be normal, the pain in the head has gone, and the nausea is slowly becoming less marked, but the patient's general strength is evidently diminishing.

On the 26th of May, under manifestations of increasing weakness, the patient passed into a comatose condition, with rapid breathing, and died before night. There were no chills, elevation of temperature, or anything else to indicate that the opening in the lateral sinus had in any way aggravated the situation. His death seemed to be due to his diabetic condition, aggravated unquestionably by the disturbing effects of the administration of the ether and by the shock of the operation.

Case II.—Male, about fifty-five years old, and somewhat emaciated in appearance. For a period of six years he had had diabetes mellitus. On or about December 10, 1891, he began to experience some pain in the left ear, followed soon by a discharge, which gradually became quite abundant. From the 10th of December until January 23, 1892, the day on which I was first called to see the patient, he was never free from pain in or about the ear for more than a few hours at a time, and toward the end of this period the pain seemed to be located chiefly behind and above the ear. On examination I found that the skin covering the left mastoid was normal in appearance, but there was appreciable tenderness on pressure over the central and lower part of the process. The discharge was distinctly purulent in character and abundant. As the patient had been attending to business, I advised (tentatively) rest at home, systematic douching of the external auditory canal, and frequent hot poulticing.

On the 5th of February I found that the discharge from the ear had become more profuse, and there were evidences of the escape of infective material into the tissues on the side of the neck below the mastoid. There was also redness and infiltration of the skin behind the process, toward the occipital region.

On the 6th of February ether was administered and I established a free opening into the mastoid process, removing all softened bone and granulation tissue, but finding no pus at any point. In every direction I found a high degree of hyperæmia, and the oozing of dark venous blood was so active and so constant that it would have been impossible to distinguish any but a large and separate collection of pus.

The subsequent progress of the case, up to February 12th, presented no features of special interest. The redness and infiltration of the skin between the mastoid process and the occipital region did not subside, but rather increased a little; and yet, when his physician visited him on the morning of the 12th, the patient seemed to be getting on particularly well. Nevertheless, six hours after this visit, he began to complain of headache and a sensation of chilliness, and gradually sank into a comatose condition, with a pulse of 130, a temperature of 104° F., and rapid breathing. Death occurred on the same day.

In looking back upon this case in all its aspects, I do not feel at all sure that the patient died of diabetic coma, pure and simple. It is quite as likely that a periphlebitic collection of pus finally found a way of escape for itself through the eroded wall of the lateral sinus, and so induced the chilly sensation experienced by the patient on the last day of his life, the rise in temperature, the coma, and the rapid breathing. The redness and swelling of the integuments just behind the mastoid, taken in connection with the high degree of hyperæmia observed in every part of the body of the mastoid process, seem to me, as I remarked in the paper which I read before this society last year, to warrant a diagnosis of active periphlebitis in the sigmoid fossa of the temporal bone.

Case III.—Male, forty-nine years of age, and, up to the time of the present illness, strong and apparently healthy. Early in March, 1895, he had an attack of what seemed to be the grippe. His right ear soon became involved, and he experienced a great deal of pain in it. At the end of two days a discharge made its appearance, and he then obtained some relief from his earache. From that time to the day on which he called to see me (April 10, 1895) the discharge from the ear had been constant and abundant. The pain had come in paroxysms and at times had been severe. During the preceding two or three days there had been some redness, swelling, and tenderness of the skin behind the right ear, and he had been unable to obtain more than brief snatches of sleep on account of the severity of the pain, which by this time involved the entire right side of his head. His urine was examined and found to be loaded with sugar. He was questioned in regard to the quantity which he habitually passed, but apparently he had not voided a greater amount than might fairly be termed normal. An examination of the ear revealed the fact that the upper and posterior cutaneous wall of the right external auditory canal was prolapsed to such a degree that it was not found possible to obtain a view of the drum membrane. The body temperature was found to be 99° F., and the pulse 102, full and regular; but the patient looked and felt decidedly ill. There were very decided evidences of mastoid periostitis.

On the 11th of April ether was administered as an anæsthetic, and the usual operation was performed upon the affected mastoid process. The surface of the exposed bone showed, near its centre, the shaved-beard appearance indicative of the plugging of a number of small blood-vessels in the cortical portion of the bone. Pus and gas bubbles were found at a very slight depth from the surface. The odor which quickly filled the air in the immediate vicinity was that of sulphureted hydrogen with a certain sweetish flavor added to it. In all directions pus and dead bone were found, and from the antrum and immediate surroundings the flow of dark blood was unusually active. In the immediate vicinity of the sigmoid fossa I found the bone perfectly black and softened. I carefully scraped away all this affected bone until I reached the hard cortical substance which constitutes the immediate bony support of the lateral sinus, and as this seemed to be natural in consistence, although somewhat darker than it should be, I decided not to break through into the sigmoid fossa. The usual dressings were applied after the mastoid excavation had been thoroughly irrigated with a 1-to-2,000 bichloride solution and then dusted with a powder composed of one part of iodoform and four of boric acid (as suggested by Macewen).

During the first four days following the operation the patient experienced a good deal of pain throughout the right side of the head, and all the soft parts behind and above the wound, and extending to a considerable distance from it, presented an angry and swollen appearance, almost suggesting erysipelas. But the body temperature did not rise above 100·3° F. Toward the end of this period I evacuated some thin pus from beneath the scalp above the wound, and on the next day (April 17th) I found the patient almost free from pain and with considerably less inflammation around the wound. The urine was examined a second time and found still to be loaded with sugar.

From the 17th of April onward the patient made a rapid recovery, without drawbacks of any kind. On the 21st he returned to his home in the country. A third examination of his urine was made about one week or ten days later, and sugar was still found in it in abundance. On the 10th of May he called to see me, and I found that the wound had become reduced in size to a mere granulating orifice. It probably healed entirely in the course of the following four or five days.

(Through the courtesy of Dr. William B. Coley, of this city, I am able to give the more important facts relating to a fourth patient whom I saw with him in consultation.)

Case IV.—Male, sixty-two years of age, rather infirm in his general appearance and gait, and affected with diabetes mellitus during the past four years. In June, 1894, he experienced pain first in the left ear and then, on the following day, in the right. For a period of about four weeks he suffered a good deal from pain, chiefly in the right ear. Paracentesis of the right membrana tympani afforded considerable relief. At the end of seven or eight weeks he noticed that the skin behind the right ear was beginning to be tender on pressure and somewhat swollen. In a few days it was found necessary to open an abscess in this locality. This afforded further relief from the pain; and from that time until the 26th of October, when I saw the patient in consultation with Dr. Coley, he got along fairly well. Both ears continued to discharge, and a fistulous opening persisted behind the right ear. On examination, I found that on both sides there was well-marked prolapse of the upper and posterior cutaneous wall of the external auditory canal (inner half), with a congested and infiltrated membrana tympani. The fistula behind the right ear was explored with a probe, but no denuded or roughened bone was felt. The neighboring soft parts were markedly infiltrated. On the left side the mastoid integuments were also infiltrated, and the tenderness on pressure extended backward beyond the limits of the mastoid process.

On the 27th Dr. Coley operated on both mastoid processes and evacuated pus from both. The patient experienced no unpleasant effects from the prolonged administration of an anæsthetic (ether), and soon regained a fair measure of health and strength.

At the present date (June 17th) I am informed that under a modified diet the patient has regained his health to a remarkable degree, and no longer exhibits sugar in his urine. The ears give him no trouble whatever, but the wound behind the left ear has not absolutely closed, although it now looks as if this might occur at any moment. The wound behind the right ear healed last March.

INTUBATION,

WITH FORCED DILATATION OF THE LARYNX LASTING ONLY A FEW MINUTES, FOR DIPHTHERITIC AND CROUPOUS LARYNGITIS.

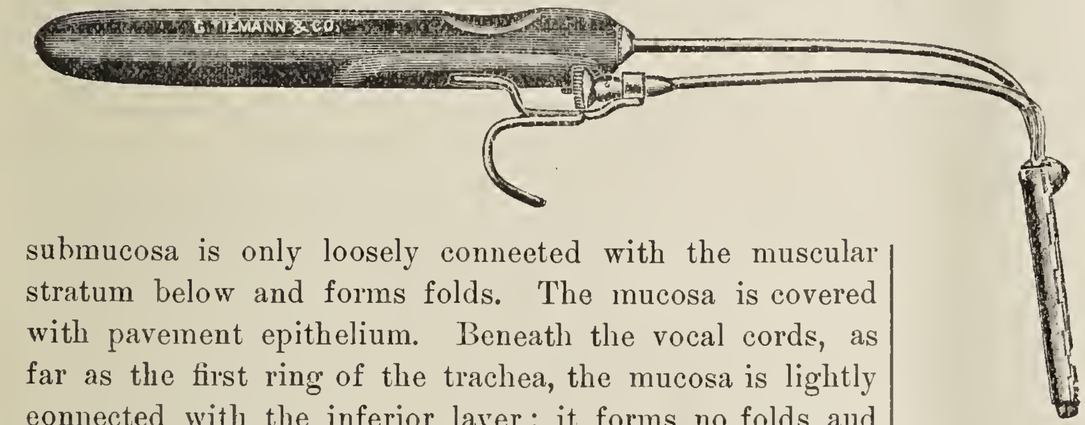
By LOUIS BORS, M. D.

The larynx of a child is, in consequence of its anatomical structure, of its ligamentous connections, and of its cartilaginous parts, quickly and easily dilated. The most important supports of the laryngeal skeleton, the thyreoid and the cricoid cartilages, are narrower anteriorly and laterally, and consequently of a weaker structure, than their posterior parts, which adjoin the œsophagus. The thyreoid, crico-arytænoid, and hyo-thyreoid ligaments in the upper space of the larynx give very favorable conditions for dilatation, also the crico-thyreoid and the crico-tracheal ligaments in the inferior section of the larynx.

The soft tissues surrounding the larynx, such as muscles, arteries, and connective tissue, being covered only by skin, are easily compressed forward and sideways, but the posterior parts are not compressible, on account of the vertebral column. Dilatation of the larynx is therefore produced by stretching the ligaments and by lateral pressure on the surrounding parts.

Aphonia supervening in such cases at an early date proves that in diphtheritic and croupous laryngitis the vocal cords and the ventriculi Morgagni first cause the stenosis. This also proves that in false croup small mucous deposits on the vocal cords may give rise to asphyxia, which ceases, however, as soon as the deposits are cast off. Consequently it will not be difficult in most cases to arrest the stenosis by dilating the tissues around the vocal cords.

The diphtheritic and croupous exudations form superficial membranes of different lengths and thicknesses, and they are deposited in and on the mucous stratum and may quickly reduce the lumen. These exudations do not adhere to all sections of the mucosa with the same tenacity. They adhere more rigidly to the base of the epiglottis beneath the vocal cords; they become lodged in the mucosa because these parts are without glands, and because the submucosa is only loosely connected with the muscular stratum below and forms folds. The mucosa is covered with pavement epithelium. Beneath the vocal cords, as far as the first ring of the trachea, the mucosa is lightly connected with the inferior layer; it forms no folds and is covered with ciliated epithelium. The exudations adhering only loosely and superficially to the mucosa, they are therefore easily separated.



The danger arising from asphyxia in consequence of diphtheritic or croupous laryngitis has hitherto been checked by catheterism, tracheotomy, or intubation with more or less success, according to other disturbances in vital organs which threatened to give rise to negative results after operations.

The purpose of forced dilatation is to re-establish in a few minutes the lumen of the larynx which is more or less obstructed by false membranes and mucous matter adhering to it. After the introduction of the cannula the loose membranes are expectorated with the mucous matter covering them; the membranes adhering to the mucosa are loosened thoroughly or partly by forced dilatation with the cannula; by pressing the membranes against the wall of the larynx, which diminishes them in thickness, and by quickly opening and closing the cannula several times, they become loosened or separated from the inferior layer, and expectoration occurs shortly afterward.

In rare cases the membranes are reproduced within twelve or twenty-four hours and again give rise to asphyxia. In the majority of cases restored respiration is coincident with a reduced new formation of membranes; in some cases they develop in a few parts of the larynx, but are expectorated by the vigorous coughing of the patient, who now breathes more freely and can be better nourished. There are, however, cases in which repeated dilatations are indispensable. From my own experience I can state that the growth of false membranes seldom occurs more than twice, but should it do so no physician ought to abstain from applying forced dilatation for a few minutes every two hours and a half for two or three days.

Up to the present time, asphyxia and pronounced cyanosis have been considered by most physicians as the proper conditions under which to carry out tracheotomy or intubation. I should give the preference, however, to early action when stenosis appears with its alarming symptoms, leading to retraction of the neck and of the scrobiculus cordis, and thus often prevent pneumonia, bronchitis, emphysema, and stagnation of blood in the kidneys, which we are accustomed to consider as fatal complications, although, in fact, they are but the consequences of stenosis of long duration.

The instrument consists, first, of one three-bladed, jointed, dilating cannula; second, of a bent shaft; third, of the introducing handle. It is dilated as follows: After introducing the cannula into the larynx, the screw situated under the handle of the instrument is turned to the right, drawing the inner blade of the cannula to one side and enlarging its diameter without using force in dilating. The closing of the cannula for removal is as simple as its dilatation, by reversing the screw under the introducing handle. There are three sizes of these forcible dilators for diphtheria and croup, the lumina (or inside diameters) of which are, when closed, respectively 2·5 mm., 4 mm., and 5 mm. The obdurator has three fenestræ in its lower distal extremity which prevent asphyxiation in the introduction. The instrument is made in the most satisfactory manner by Messrs. George Tiemann & Co., of New York city.

The manipulation is harmless and painless, and requires only a few minutes in the application. The indications for forced dilatation of the larynx in syphilitic and in other cicatrices will be treated of in another paper.

A New York Physician in Practice in London.—Dr. Allan McLane Hamilton, of New York, is practising in London for the summer (May, June, and July) at No. 14 Chesterfield Street, Mayfair.

Changes of Address.—Dr. Albert S. Ashmead, to No. 270 West Forty-third Street, New York; Dr. Ervin A. Tucker, to No. 62 West Forty-eighth Street, New York.

THE
NEW YORK MEDICAL JOURNAL,
A Weekly Review of Medicine.

Published by D. Appleton & Co.
Edited by Frank P. Foster, M. D.

NEW YORK, SATURDAY, JUNE 29, 1895.

ELECTRICITY AS A DEATH-DEALING AGENT.

The account which was published in the *Sun* last Saturday morning of the resuscitation of a man who had been rendered unconscious and apparently lifeless by a shock from an electric dynamo, and remained in a state of apparent death for close on to an hour, whatever allowance may have to be made for exaggeration, is calculated to give rise to reflection. In the first place, it makes us hope that the victims of lightning-stroke may in a fair proportion of instances be brought back to life if timely and well-executed measures are brought into play, especially artificial movements of respiration and rhythmical tractions on the tongue. M. d'Arsonval has, if we are not mistaken, laid great stress on the possibility of such efforts being successful and on the duty of resorting to them, and it seems that his teaching has made such an impression even on men outside the medical profession as to lead the officers of the electrical company in Rochester, on whose premises the resuscitation referred to is reported to have occurred, to have their workmen drilled in the manipulations recommended by him. If only an occasional life is saved by following M. d'Arsonval's precepts the result will be a decided gain to humanity, but if success is achieved in a few cases modifications of the procedures or greater precision in carrying them out will doubtless soon raise the proportion of successful instances to the maximum attainable.

Another thought that will inevitably rise up before physicians is not so gratifying; it is that of the heightened probability given by the occurrence to the theory that men who are supposed to be put to death by electricity, under judicial sentence, in the State of New York are simply shocked into a condition of suspended animation that slowly ends in real death, even if the shocking event does not sometimes occur of their final taking off being accomplished by the autopsy that is so promptly performed. It is a revolting thought, but it is one that our humanity dare not shirk. It seems to us that the alleged advantages of electrical execution will have to be reconsidered most seriously. This journal has never admitted their reality, and now more than ever we feel it our duty to call upon the law-making power to use all diligence to ascertain if it has not made a horrid mistake while acting under the false light of supposed progress. If the death penalty must be inflicted, by all means let it be done by the executioner in the course of his duty, and not left to be done unwittingly by the pathologist. We make no statement that it ever has been done by him, but we see not how to escape the doubt lest it may have been, or lest it may be again if the practice of making over-prompt dissections of executed criminals is kept up. The whole matter of the manner of conducting executions in the State of New York ought, in our opinion, to be most carefully systematized by a body of men possessed of the necessary knowledge and clothed with sufficient authority.

ITEMS, ETC.

Society Meetings for the Coming Week:

Monday, *July 1st:* Morrisania Medical Society, New York (private); Brooklyn Anatomical and Surgical Society (private); Utica, N. Y., Medical Library Association; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., Medical Society; Chicago Medical Society.

Tuesday, *July 2d:* Buffalo, N. Y., Medical and Surgical Association; Elmira, N. Y., Academy of Medicine; Ogdensburgh, N. Y., Medical Association; Syracuse, N. Y., Academy of Medicine; Medical Society of the County of Broome (quarterly), N. Y.; Hudson (Jersey City) and Union (quarterly), N. J., County Medical Societies; Chittenden, Vt., County Medical Society; Androscoggin, Me., County Medical Association (Lewiston); Medical Society of the University of Maryland (Baltimore).

Wednesday, *July 3d:* Medical Society of the County of Richmond (Stapleton), N. Y.; Bridgeport, Conn., Medical Association.

Thursday, *July 4th:* Society of Physicians of the Village of Canandaigua; Brooklyn Surgical Society; Cuyahoga County, O., Medical Society (Cleveland); Washington, Vt., County Medical Society.

Saturday, *July 6th:* Clinical Society of the New York Post-graduate Medical School and Hospital; Miller's River, Mass., Medical Society.

Proceedings of Societies.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

Ninth Annual Meeting, held in Niagara Falls, on Tuesday and Wednesday, May 28 and 29, 1895.

The President, Dr. L. Bolton Bangs, of New York, in the Chair.

Tuberculosis and Neoplasms of the Bladder: Surgery or Hygiene?—The President first reported three cases of tuberculosis of the bladder which he stated were typical of many in which hygienic treatment was followed by very beneficial results. Vitalization of tissue was what these patients needed, and they required at least two years of good hygienic residence in a temperate climate; besides climate, they needed occupation, for *ennui* seemed to be almost as deteriorating as confinement to the house. Surgical traumatism produced by over-zealous efforts to relieve local symptoms seemed to result in more harm than good. Such efforts were apt to put the unhappy patient still further below par and facilitate the development of other tubercular foci, either in the same organ or in a distant one. It was not necessary to enter into the question of whether the infection was an "ascending" or a "descending" one; the bacilli were in the individual's blood, and were only waiting for a local congestion (following some form of irritation) in order to lodge and proliferate.

After faithful and zealous efforts to relieve the local symptoms of these cases by surgical interference, the speaker had been forced to the conclusion that the less instrumentation we resorted to, the better. In the genito urinary tract, as elsewhere, the best defense of the tissues against the inroads of the bacilli, and that which finally effected a cure, was to be attained only by enabling the body to surround the tubercular deposits with a layer of healthy connective tissue. He expressed the opinion that this could be done in no other way than by improving the resisting power of the individual.

Dr. Bangs next referred to a class of cases in strong contrast to the foregoing, but in which the possibility of a cure also depended upon their early discovery—namely, malignant diseases of the bladder. Unfortunately, in these cases many of the early symptoms were overlooked, or, if recognized, were misunderstood. The patients themselves, because of the insidious onset of the disease, became accustomed to their first symptoms and usually did not seek the advice of their medical attendant until the affection was well advanced. The speaker then reported three cases of malignant disease of the bladder, and stated that he contrasted these two groups in order to present for discussion the points that incipient cases of tuberculosis of the bladder should be subjected to hygienic rather than surgical treatment, and that in the incipient stages of vesical neoplasms early surgical treatment of the most radical kind should be instituted.

Dr. John P. Bryson, of St. Louis, said he was entirely in accord with Dr. Bangs regarding the treatment of these tubercular cases. In tubercular cystitis perineal drainage was not to be recommended. In two of his cases the perineal wound had become infected and had never healed. The suprapubic route was altogether to be preferred when drainage was to be resorted to at all in these cases. An early diagnosis was of the utmost importance, and was possible, perhaps, earlier than had been intimated in the paper. Careful examination of the prostatic urethra by means of the finger in the rectum, and repeated searches for the bacilli in the urinary sediments, would help us. When a suprapubic incision was deemed necessary, experience had led him to make the opening as high and as far away from the vesical outlet as possible, so as to have a direct drainage channel and keep the tube away from the vesical outlet, which was the most sensitive part of the bladder.

In cases of vesical neoplasms the symptoms frequently came on late. If the new growth was situated toward the fundus, or at any considerable distance away from the vesical outlet, there was no reason why there should be any symptoms of its existence for a considerable length of time, and the first symptom was apt to be hæmorrhage. The speaker said he was not so optimistic as the reader of the paper regarding the benefit to be derived from an early operation in cases of neoplasms of the bladder. He had never yet seen a case of papilloma of the bladder, supposed to be benign, which had not proved to be malignant and destroyed the life of the patient.

Dr. Gardner W. Allen, of Boston, reported a case of tuberculosis of the bladder, with very pronounced symptoms, which had been cured by hygienic treatment.

Dr. Bransford Lewis, of St. Louis, reported a case of tubercular cystitis in a farmer from Kansas. The patient had come to St. Louis, and there, under supporting treatment, rest, and the use of creosote and cod-liver oil internally, the urine, which had been cloudy for three years, had cleared up, and the man had gained about twenty pounds in weight in three months.

Dr. Bryson said that in these cases he had observed much benefit from the use of the simple hypophosphites. Cod-liver oil had not been particularly serviceable. He had seen no benefit from the malt preparations, and creosote had not in any way helped his patients. In the early stages of the disease he had seen the frequency of urination relieved by the internal administration of the oil of yellow sandalwood.

Dr. Eugene Fuller, of New York, said he agreed with Dr. Bangs that hygiene was the most important factor in the treatment of these cases. Alcohol, in some form, was often of service.

Dr. George Chismore, of San Francisco, expressed the opinion that the pain complained of by these patients was very frequently due to the methods of search employed in endeavoring to discover the cause of the trouble. As a routine treatment, washing of the bladder was not to be recommended, particularly in tubercular cases. He agreed with Dr. Bryson that an early operation in cases of malignant growths of the bladder did not always effect a permanent cure.

The President said that, while he was willing to admit that the cure of malignant disease of the bladder was still a problem, the success he had obtained by operating in cases of so-called papilloma of the bladder warranted him in expressing the belief that such cases were curable by early operative interference.

Hæmaturia.—Dr. William K. Otis, of New York, read a paper on this subject. After detailing a number of chemical tests to demonstrate the presence of blood in the urine, the author stated that the actual presence of blood might also be determined by the use of the spectroscope; microscopes having a spectroscopic eyepiece were especially adapted for this purpose. When the existence of hæmaturia had been definitely determined, the next important step was to ascertain as accurately as possible in what portion of the urinary tract the lesion from which the hæmorrhage emanated was situated. When it was situated in the anterior urethra, between the meatus and the compressor urethræ muscle, if the blood was sufficient in amount it would exude from the meatus or might be pressed out by stripping the urethra with the finger. If the urine was passed in two portions, the first only would contain blood. When the hæmorrhage came from the posterior urethra, between the compressor urethræ muscle and the internal sphincter of the bladder, blood would not exude from the meatus, and, if the bleeding was sufficiently large in amount, the pressure would overcome the lesser resistance of the internal sphincter and the blood would flow back into the bladder, making it difficult to decide whether its source was the bladder or the posterior urethra. In most of the cases where the bleeding came from the posterior urethra there was considerable urgency in urination, although occasionally this symptom was absent.

If the point of hæmorrhage was situated within the bladder the entire urine therein contained would be intimately mixed with blood, and if the hæmorrhage was profuse clots might form which had a certain diagnostic significance if they were too large to have passed through the ureter. Some authors considered the color of the urine an indication of the origin of the hæmorrhage, but this varied so greatly under different conditions that it was unreliable and was of but little value in arriving at a diagnosis. Microscopic examination of the urine might show evidence of the presence of some new growth in the bladder, while on the other hand the detection of casts containing blood-corpuscles indicated that the lesion existed in the kidney.

Should the examination of the urine fail to reveal the source of the hæmorrhage, we might proceed to the direct examination of the bladder itself by carefully washing out the organ through a woven catheter by means of a hand syringe, and then inject a few ounces of clear fluid and withdraw the catheter just far enough to prevent the fluid from escaping; after a few moments the catheter was to be re-introduced, and if the fluid returned mixed with blood the hæmorrhage was probably vesical in origin.

The resorption test, made by introducing a solution of potassium iodide into the bladder and shortly afterward testing the saliva for free iodine, was also extremely valuable and satisfactory for the purpose of determining if a lesion existed within the bladder. When the bladder was the seat of a new growth its presence might sometimes be determined by bimanual palpation with one finger in the rectum, or by examination with an ordinary searcher or sound.

The value of an examination with the electro-cystoscope in cases of hæmaturia in which the diagnosis was difficult could hardly be overestimated. By its aid we were enabled not only to distinguish with exactness the portion of the bladder from which the hæmorrhage emanated, but also to determine the cause and extent of the lesion. The instrument was especially valuable in making a correct diagnosis in renal hæmorrhage, for with its aid not only were we able to ascertain that the blood was derived from the kidney, but also to tell definitely on which side the affected organ was situated.

In ascertaining the precise source of hæmorrhage from the kidney, the clinical symptoms, the physical signs, and the previous history of the patient were usually of great value, although hæmorrhages occasionally occurred without the slightest warning and without other symptoms. As a rule, however, symptoms were present which point to the kidney as the seat of the difficulty. Lastly, if for any reason it was impossible to detect the situation of the lesion, and at the same time the bladder appeared to be its most probable seat, it was perfectly allowable to perform an exploratory suprapubic cystotomy, especially if the hæmorrhage was severe or had been of long duration.

Dr. W. F. Glenn, of Nashville, said that by means of the Leiter cystoscope and the Otis urethroscope we could often make out with certainty whether the source of the bleeding is the urethra, the bladder, or the kidney.

Dr. Bryson said that, while he was inclined to agree to the statement made by Dr. Glenn, we still needed an instrument which would enable us to get a good view of the vesical outlet. The speaker called attention to the possibility of determining the source of pyuria, when it was unilateral and of renal origin, by means of the cystoscope. He had catheterized the ureters in women, but regarded it as a very uncertain procedure; at least it had been in his hands. When properly and skillfully used, there is probably no instrument which afforded the same amount of diagnostic advantage as the cystoscope. To use the instrument well required long practice, and the photographs of cystoscopic views which were now accessible were among the very best aids we had in studying the vesical interior.

Dr. Edward R. Palmer, of Louisville, said he had had no trouble in getting a view of the bladder neck, for which purpose he employed a long Klotz tube (No. 24 to 26) and the Otis instrument lamp.

Dr. Abner Post, of Boston, referred to two cases of carcinoma of the kidney that had recently come under his observation in which some very interesting casts of the ureter had been seen. In one case there had been a large number of very short casts, while in the other there had been one continuous cast over five feet in length.

Dr. Robert W. Taylor, of New York, asked Dr. Palmer whether he had not found that the introduction of such large instruments into the posterior urethra was apt to give rise to epididymitis.

Dr. Palmer replied that he had never seen any untoward results follow the introduction of the long Klotz tube.

Dr. Otis said that, while the cystoscope is of great value in detecting the source of hæmorrhage from the genito-urinary tract, there were certain cases in which it could not be used because of the free bleeding, or because the bladder was very small. He agreed to the statement made by Dr. Bryson that in cystoscopy we were not able to get a good view of the internal urethral orifice.

Gonorrhœa in Women.—Dr. Taylor read a paper on this subject. He stated that gonorrhœa in women was certainly much less frequent than it was in the male, and usually ran a much less definite course. In the main, it localized itself in one or two parts, ran an acute course, became subacute, and ceased. In many cases it began and remained in a subacute condition for a considerable time. Then, again, in some cases it progressively invaded the genital tract. Having become lodged in the cervix uteri, it might extend to the body of that organ and attack the Falloppian tubes and the ovaries, and then the peritonæum. Patients thus affected were usually sterile, they suffered intense discomfort and pain, and their health was so impaired that they might become mental and physical wrecks. These sad results certainly did occur in relatively quite a large number of cases. Instances were not infrequent in which wives were infected with gonorrhœa by their husbands, who perhaps regarded themselves as cured. It was very difficult and even impossible to get reliable statistics as to the frequency of the occurrence of acute gonorrhœa in women. It of course existed largely in prostitutes, particularly in quite young ones, and those of the lower walks of life, and it was not uncommon in shop girls and others who, for various reasons, had left their homes and ceased to be under parental and family restraint. In the light of recent investigations and studies it had been clearly proved that in women over twenty years of age the urethra and the cervix uteri were the parts most commonly attacked by gonorrhœa. There could be no doubt of the existence of a true gonorrhœal infection of the vulva, but it was not very common. It was sometimes met with in young girls between fifteen and twenty years of age, usually as a result of their first infection and in their earlier attempts at intercourse. Although the existence of gonorrhœal elytritis had been denied, there could be no doubt that in a restricted number of cases gonorrhœa primarily attacking the vagina did occur. It was also not infrequently infected by the gonorrhœal secretion from the os uteri.

Gonorrhœa in women, as in men, consisted of an exudative inflammation of the submucous connective tissue, and the genital organs of women were so extensive, so complex, so involved, and so profusely supplied with blood-vessels which frequently underwent normal engorgement, that it could readily be understood why the morbid process might show a tendency to become chronic.

There had been a disposition developed within the past ten years to refer, in a loose and unscientific manner, all ailments peculiar to women to gonorrhœa, and to attribute to many husbands who in their earlier days had had gonorrhœa a gonorrhœal infection of their wives which produced serious consequences. The extreme and exaggerated views of Noeggerath, who had maintained that eight hundred out of every one thousand men living in large cities suffered from gonorrhœa which they never recovered from, and that, on marrying, they sooner or later infected their wives, had done much to perpetuate these ideas. There was a tendency nowadays to harp upon the longevity of the gonococcus, its phœnixlike power of resuscitation, and its relentless virulence. This idea, put forth by some syphilographers, had had undue weight with many gynæcologists, who, under its influence, had been led to think that the gonococcus never died and that it was ever ready to produce pelvic mischief. The author said he had seen many young women who had suffered from uterine and pelvic disease after marriage, whose trouble had been induced by instrumental manipulation at the hands of energetic young men possessed of an ambition to be known as gynæcologists. Minor surgery was certainly the cause of many cases of uterine and pelvic disease. In estimating the importance of gonorrhœal infection as a cause of trouble in women we must individualize rather than generalize.

Dr. Palmer said it had been stated, and correctly, that in these cases of diseased Falloppian tubes, of long standing, and containing large quantities of stagnant pus, the latter very frequently failed to show the presence of gonococci. On making a section of the structure of the tube itself, however, the gonococci would be found living in the stroma. They possessed a tendency to burrow underneath the surface. In one case of monocryptorchidism that had come under his observation there had been gonorrhœal infection of the incarcerated testicle, which had become so painful that it had had to be removed at the height of the inflammation. The gonococci had been found in the intimate structures of this organ, which was of course rudimentary.

Dr. Glenn expressed the opinion that the gonococcus, unless it became imbedded in the mucous membrane, was not a difficult micro-organism to kill.

Dr. Lewis said that Wertheim's experiments had clearly shown the penetrative power of the gonococci.

(*To be continued.*)

Book Notices.

Bäder-Almanach. Mittheilungen der Bäder, Luftkurorte und Heilanstalten in Deutschland, Oesterreich, der Schweiz und den angrenzenden Gebieten für Aerzte und Heilbedürftige. Sechste Ausgabe. Mit Karte der Bäder, Kurorte und Heilanstalten. Berlin: Rudolf Mosse. Pp. 524.

This is a very useful directory of the health resorts and sanatoria of Germany, Austria, Switzerland, and the adjoining countries, preceded by about fifty pages devoted to the climatic and balneological indications in various diseases. The physician who is called upon to select a place of sojourn for an invalid may often derive material aid from consulting it.

BOOKS, ETC., RECEIVED.

Text-book of Operative Surgery. By Dr. Theodor Kocher, Professor of Surgery and Director of the Surgical Clinic in the University of Bern. Translated with the Special Authority of the Author from the Second Revised and Enlarged German Edition, by Harold J. Stiles, M.B., F.R.C.S.Edin., Senior Demonstrator of Surgery and formerly Demonstrator of Anatomy in the University of Edinburgh, etc. With One Hundred and Eighty-five Illustrations. London: Adam and Charles Black, 1895. Pp. xviii–303. [Price, $3.50.]

The Deformities of the Human Foot, with their Treatment. By W. J. Walsham, M. B., C. M. Aberd., F. R. C. S. Eng., Senior Assistant Surgeon, etc., in St. Bartholomew's Hospital, London, and William Kent Hughes, M. B. Lond., M. B. Melb., M. R. C. S. Eng., L. R. C. P. Lond., Orthopædic Surgeon, St. Vincent's Hospital, etc. New York: William Wood & Company, 1895. Pp. vi–550. [Price, $4.50.]

The Lumleian Lectures on Certain Points in the Ætiology of Disease. Delivered before the Royal College of Physicians, 1892, to which is added the Harveian Oration, delivered before the College in 1893. With a Biographical Notice of Harvey and an Appendix of Statistical Tables. By P. H. Pye-Smith, M. D., F. R. S., Fellow of the College and Senior Physician to Guy's Hospital. London: J. & A. Churchill, 1895. Pp. 236. [Price, 7*s.* 6*d.*]

The Filtration of Public Water-supplies. By Allen Hazen, Late Chemist in Charge of the Lawrence Experiment Station of the Massachusetts State Board of Health, etc. First Edition. First Thousand. New York: John Wiley & Sons, 1895. Pp. x–197. [Price, $2.]

The Care of the Baby. A Manual for Mothers and Nurses, containing Practical Directions for the Management of Infancy and Childhood in Health and in Disease. By J. P. Crozer Griffith, M. D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, etc. Philadelphia: W. B. Saunders, 1895. Pp. 3 to 392. [Price, $1.50.]

On Some Symptoms which Simulate Disease of the Pelvic Organs in Women, and their Treatment by Allo-piesto myokinetics (Massage) and by Auto-piesto-myo-kinetics (Self-movements of Muscles under Pressure). By A. Rabagliati, M. A., F. R. C. S. Edin., Honorary Gynæcologist, etc., of Bradford Infirmary. New York: William Wood & Company, 1895. Pp. viii–9 to 77. [Price, $1.50.]

Atlas of Clinical Medicine. By Byrom Bramwell, M. D., F. R. C. P. Edin., F. R. S. Edin., Assistant Physician to the Edinburgh Royal Infirmary, etc. Volume III. Part II. Edinburgh: T. & A. Constable, 1895. Pp. 49 to 96.

Transactions of the American Association of Obstetricians and Gynæcologists. Vol. VII. For the Year 1894.

Transactions of the Southern Surgical and Gynæcological Association. Volume VII. Seventh Session, Charleston, S. C., November 13, 14, and 15, 1894.

Annual Report of the Department of Health of the City of Chicago, for the Year ending December 31, 1894.

Transactions of the Massachusetts Medico-legal Society. Volume II, No. 5, 1895.

A Rapid Method of Making Permanent Specimens from Frozen Sections by the Use of Formalin. By Thomas S. Cullen, M. B. [Reprinted from the *Johns Hopkins Hospital Bulletin.*]

Foreign Bodies in the Ear and Nose. By M. D. Lederman, M. D. [Reprinted] from the *Annals of Ophthalmology and Otology.*]

The Treatment of Opium Poisoning by Potassium Permanganate. By William Moor, M. D. [Reprinted from the *Medical News.*]

Hypertrophied Pharyngeal Tonsil as the Excitant in Suppurative Otitis. By M. D. Lederman, M. D. [Reprinted from the *Manhattan Eye and Ear Hospital Reports.*]

Suprapubic Cystotomy for Calculus of the Bladder. By A. H. Meisenbach, M. D., St. Louis. [Reprinted from the *Journal of the American Medical Association.*]

A Report of One Hundred and Eighteen Cataract Extractions, with Remarks. By David Webster, M. D. [Reprinted from the *Manhattan Eye and Ear Hospital Reports.*]

Stricture of the Œsophagus. By George F. Keiper, M. D. [Reprinted from the *Fort Wayne Medical Magazine.*]

The Medical Millennium. The Doctorate Address of the Medical Department of the University of Louisville, Session of 1894 to 1895. [Reprinted from the *American Practitioner and News.*]

Vierter Bericht über das unter dem Allerhöchsten Protectorat Ihrer Majestät der Kaiserin Friedrich stehende Kaiser und Kaiserin Friedrich-Kinder-Krankenhaus. In Berlin, Reinickendorfer Strasse, 32. Für die Zeit vom 1. Januar bis 31. December, 1894.

Ueber die sog. "künstlichen" Mineralwasser. Von C. Glucksmann. [Separat-Abdruck aus der *Zeitschrift für die gesammte Kohlensäure-Industrie*.]

Miscellany.

Bicycling for Women.—In the *Boston Medical and Surgical Journal* for June 13th Dr. Charles W. Townsend has an article on this subject in which he states that he sent a list of questions to eighteen women physicians in Boston and throughout the State in regard to the value of bicycling for women. The replies, he says, seem to him to cover the field of bicycling for women very satisfactorily, showing that the bicycle is of great value to the average woman, even to the woman with various forms of uterine disease. They also show that the bicycle when improperly used may do harm.

Outdoor exercise, he says, is of great value to every one, and women, as a class, suffer greatly from the lack of it. Another thing from which women suffer is too heavy and too tight clothing. Both of these ills the average woman is entirely unconscious of, and will deny the need of more exercise on the one hand, or the existence of heavy and tight clothing on the other. No amount of dress-reform preaching or of calisthenic exercises will remedy these evils or awaken the woman to a knowledge of the possibilities of the enjoyment of life. This is what the bicycle is doing, and is destined to do in the future.

The bicycle provides not only an agreeable method of exercise in the open air, but also demands a comfortable, loose, and light costume. Whether it will change woman's dress so far as to discard the skirt and substitute the divided garment or loose knickerbockers remains to be seen.

Patients who have substituted the comfortable loose health waists for corsets while they were riding, have found that corsets were unnecessary for their every-day dress and decidedly uncomfortable.

In talking with several ladies' tailors on this subject the author has found that short corsets which do not press on the abdomen are used, and that, while some cling to the regulation corset, many are using waists simply.

Like all forms of exercise the bicycle, he says, can do harm by excessive use. Too great speed or too long rides are exhausting and may injure some delicate point. The exercise is so agreeable and inspiriting that there is more danger of excess than in many outdoor sports, especially if a spirit of ambition and rivalry is allowed. The long rides on time—even "century" runs are indulged in by women—accomplish no useful purpose and often result in great harm.

Another danger to be avoided is the strain from riding up steep hills, a case where ambition often compels the rider to persist after the effort becomes too great. A good rule is to dismount and walk up every hill where the effort of riding is at all irksome. The change of exercise is restful and beneficial.

Another evil, says Dr. Townsend, one which fortunately is rarely found among women riders, but is all too common among men, is the stooping posture with bent back and head thrust out awkwardly like a tortoise. This is the position of the racer on the racecourse. For ordinary riding it is entirely unnecessary and very harmful, contracting the chest and bowing the back, besides preventing the rider from enjoying the scenery. The class of riders who sit in this way, however, do not care for scenery. By raising or lowering the handle bars or seat, both of which are adjustable, any road bicycle may be so arranged that the rider is compelled to sit erect. This matter is often not understood by parents, who think that the bicycle is so constructed as to require a bent posture. There is no more need to condemn bicycling on this account than there is to condemn horseback riding on account of the position of the jockey in racing.

The saddle, in addition, allows of considerable adjustment of tilting, and should be so arranged as to avoid pressure in the pudendal region. This danger has by some been much overestimated and can be avoided. The stooping posture, as well as a faulty position of the saddle, tends to bring pressure in this region.

The delightful nature of the exercise is of the greatest value. To most women gymnasium work is a bore, and so, often, is walking with no object in view except the exercise. Both of these forms of exercise when prescribed by the physician often accomplish but little, as the patient is not taken away from herself.

Not so with the bicycle, which breaks up morbid trains of thought, takes the patient away from herself, and in that way benefits every nervous or functional complaint. It is, moreover, an exercise which develops self-reliance, a virtue much needed by this class of patients.

Dr. Townsend thinks that bicycling is beneficial to women, not from any special effect on the pelvic organs, but because it is an agreeable, healthful form of exercise in the open air, a form which exercises the whole body and indirectly benefits special conditions. And the converse of this holds true, that as a general exercise bicycling is not hurtful to the pelvic organs even when these are affected, unless the disease is so acute that any exercise as great as this is contraindicated.

In the same journal Dr. James R. Chadwick publishes an article entitled Bicycle Saddles for Women, in which he remarks that he finds no serious attempt has as yet been made to produce a saddle that shall be adapted to a woman's anatomy.

The bicycle saddle for men, he says, seems to have been modeled upon the saddle that was found suitable for men riding upon a horse, being merely reduced in most of its dimensions. This has answered most of the requirements, though often found to strike against the prostate gland or the pubic arch. When women began to ride they were given the same saddle, regardless of the fact that behind the pubic bone are the external genital organs so prominent as inevitably to rest upon the anterior projection of the saddle. The result has been that women have generally had great difficulty in having the saddle so adjusted as to be rendered comfortable—in other words, to avoid pressing unduly upon the vulva.

His inquiries have not enabled him to form definite conclusions, but have made evident the fact that the saddles in most use require many adjustments to be comfortable to the generality of female riders; that some of the saddles are absolutely unfitted for the use of women; and that the teachers have no definite ideas by which they can adapt the saddle to the use of women.

A woman's pelvis is broader than a man's, and the tuberosities of the ischia are farther apart in women than in men, consequently the width of the rear portion of the seat needs to be greater. No such provision has been made. This is a matter, however, easily corrected when attention is called to it. The anterior projection of the saddle must be tilted downward so that it will not strike against the vulva. This, however, requires the most delicate adjustment, for if the saddle is tilted too far the slope of the seat causes the rider to slide forward so as to rest almost entirely upon the anterior projection, and so defeat the object of tilting. Again, the seat may be shifted backward and forward upon the frame without tilting. When shifted backward, the action of the leg upon the treadle tends to push the body backward and thus to insure that the ischia shall rest upon the saddle; but in this position the muscular action of the legs is less effective, which renders the work of propulsion greater.

From the foregoing, says Dr. Chadwick, it is evident that the adjustment of the present form of saddle to women is attended with great difficulty. It seems to him that the anterior projection of the present saddle should be dispensed with if possible. The problem is whether without the anterior projection the seat of the rider would be sufficiently secure. The trouble is that when the leg is straightened and the treadle is at the lower point of its circuit the thickness of the thigh tends, by pressure on the anterior margin of an oval saddle, either to lift the tuberosities of the ischia from the saddle or to drag them forward, so that after a jolt they will not descend upon their proper place, and a secure seat will thereby be lost, or the skin is chafed at the junction of the thigh and the ischiadic region. The feasibility of such a saddle as this, says the author, can be determined only by experiment, and this should be done before women are generally allowed to ride.

Dr. Chadwick thinks that bicycling is a most desirable form of recreation and exercise for women, and his purpose in bringing the subject up for discussion is to stimulate the inventive minds of its advocates to devise a saddle which shall not inflict local injury or discomfort upon women riders.

The Hysterical Breast.—In the *Nouvelle iconographie de la Salpêtrière* for March and April there is a long and interesting article on this subject by Professor Gilles de la Tourette, who remarks that this affection should be ranked among the trophic troubles allied to hysteria and closely connected with œdema. It constitutes, he says, one of the most interesting manifestations of the neurosis, especially from a surgical point of view. The hysterical breast has led to many errors in diagnosis, followed occasionally by the ablation of an organ which, under the circumstances, was amenable only to medical intervention.

Willis, at the end of the seventeenth century, seemed to be the first to observe this manifestation. A young woman was attacked with very violent hysterical symptoms following a blow on the breast. The swelling of the organ and the pain were coincident with the convulsions. After pregnancy, however, the hysteria, with the swelling and the pain, disappeared. Frederic Hoffman, in 1748, reported two cases of painful swelling of both breasts coincident with hysterical attacks. At the end of the last century M. P. Pomme said: "The breast swells occasionally from the effects of the reflux of menstruation, and often this swelling has been mistaken for a true tumor. It is painful, and is a source of great alarm to the patient. Too much air in the cellular tissue of the breasts and the engorgement of the mammary veins from the reflux of the hypogastric region give rise to this error. The application of a wet cloth usually arrests the symptoms." Watson said that surgeons were well acquainted with the hysterical breast. The breast becomes painful and sensitive, and increases somewhat in size. In 1837 Brodie made a distinction between the cases of hysteria and those of tumor. Although his opinion on this point is erroneous, says the author, his description of the hysterical breast is not without importance, and is remarkable for its clearness. "Some young women," he says, "are subject to an affection of the breast which shows a great resemblance to the articular affections of an hysterical nature. The patient complains of a pain in the breast, and the least pressure causes her to cry out. Sometimes simply palpating the organ produces movements of the entire body, which resemble very much those of chorea; however, if the patient's attention can be completely turned from herself, not only will the movements cease, but she will scarcely feel any pain. This hyperæsthesia is not limited to the breast; it extends to the axilla and to the arm. No tumor is found in the organ, but when the affection is somewhat advanced the breast becomes swollen, probably in consequence of a secondary hyperæmia. Nevertheless, there is no redness of the skin, rather, on the contrary, a slight pallor, with a generally shiny aspect. These cases must not be confounded with those of painful tumors of the breast, of which Astley Cooper gives illustrated examples in his work. It is also necessary to distinguish them from all kinds of tumors presenting themselves in women who are not in any way predisposed to hysteria. In these cases the pain and the sensitiveness are much less than in those of true hysteria." Brodie's description is excellent, says the author, with the exception of a few points, particularly in regard to the fact that hysteria may produce veritable tumors in the breast that may lead to errors in diagnosis.

Hysterical breast, says M. de la Tourette, like arthralgia, is a type of local hysteria. In its ætiology, contusion of the organ will often be observed. The local traumatism influences the mental state of the patient, who is only too ready to favor this localization. Apart from these cases where the occasional cause may be recognized, there are others in which we have only the common ætiology of hysteria. The symptoms often exist in women who suffer with painful menstruation, who present hyperæsthetic or hysterogenic zones of the vagina or of the neck of the uterus. It is certain that disturbances of the latter may singularly influence the organs of lactation and produce there hysteria. Nearly always one breast alone is attacked, although Frederic Hoffman and Liouville have observed cases where the two breasts were involved at the same time.

The hysterical breast consists of a temporary or permanent increase in the size of the organ with considerable hyperæsthesia of the skin. It is a question of a hyperæsthetic, hysterogenic zone the excitation of which leads, in the majority of cases, to convulsive paroxysms. At the moment of the attack a series of vaso-motor symptoms are produced locally which begin with simple congestion and lead to œdema, sometimes, perhaps, to gangrene of the skin. Hyperæsthesia of the skin of the breast does not differ from that of the skin of other parts of the body. It is much more marked when a slight, superficial friction is applied; sometimes it is so exquisite that the patients can not bear their clothing to touch them, although in certain cases the pressure of the corset seems to give relief.

The hyperæsthesia is permanent, but it is more marked at certain times under the influence of causes which usually control the excitation of the hyperæsthetic zones that are transformed then into hysterogenic zones. Direct pressure and acute emotions may cause the zone of the breast to become active in the same way that it feels the influence of the excitation of the neighboring zones or of those which, situated near the vagina or the uterus, become excited during menstruation. At the moment when, under the action of these various causes, the zone of the mammary region becomes excited, it or the breasts become spontaneously the seat of a pricking sensation and of darting pains which are very severe and of a neuralgic character. The breast becomes tumefied, the nipple is erect, and the entire organ increases to almost double its size. Frequently the pain does not remain localized, but radiates to the axilla, to the spine, etc. The skin at this period, according to Brodie, is not red, but somewhat pale and shiny. Liouville said that it was hot, red, and tense. Féré held the same opinion. The aspect of the skin may be variable, according to the cases, during the paroxysms or in the intervals. The tumefaction and other symptoms are not always limited to the duration of the paroxysm itself. In simple cases, or when the affection is just beginning, the swelling disappears with the painful attack, but more frequently, especially if the attacks follow each other closely, the tumefaction persists in variable degrees during the intervals between the paroxysms, and the attacks are always accompanied by this exquisite cutaneous hyperæsthesia, which is excited under the influence of various causes. In these cases palpation reveals interesting peculiarities. During the attack it is almost impossible to palpate the breast. The pain is much too acute to admit of a reliable examination. But it is not so in the intervals between the paroxysms, especially if care is taken to palpate the gland deeply and not superficially, as the cutaneous irritation is likely to produce excitation of the hysterogenic zone.

Hysteria of the breast, says M. de la Tourette, is very tenacious, and its duration may be very long. It is known, moreover, how difficult it is sometimes to remove a mark of the nature of a hyperæsthetic zone, and the hysterical breast is nothing else than the reaction of a special organ under the influence of a zone of this kind.

This affection is perfectly characterized and depends on the hyperæsthetic and hysterogenic zone of the skin of the mammary region and on an œdema of the connective tissue of the gland, which may assume a white, a red, or the violet color of hysterical œdema. Apart from this form, where the swelling of the breast is uniform, there is another form susceptible of the same interpretation. In this the œdema is hard and is localized more particularly in certain points under the form of tumors which are not accompanied by ganglionic engorgement unless there is ulceration.

If these peculiarities are considered, says the author, the diagnosis should scarcely be doubtful, although amputation has been practised several times, and it is still advised at the present day. M. Péan, he says, practised partial amputation of the breast in a young hysterical girl in whom palpation had revealed some nodes. The pains persisted after amputation, however, becoming more violent during the hysterical attacks, which were coincident with menstruation. This fact, says M. de la Tourette, proves that surgical intervention should be condemned. The author has ascertained, moreover, that the microscope does not reveal anything abnormal in the amputated part except a slight proliferation of the glandular elements.

The author relates the histories of two cases from which the conclusion may be drawn that the prognosis of hysterical affection of the breast is relatively grave, since not only may it extend over a period of twelve years, as was shown in one case, but may give rise to gangrenous symptoms that may cause adenitis and fistula by secondary infection.

Psoriasis Treated with Oil of Copaiba.—In the *Therapeutic Gazette* for June 15th Dr. J. Abbott Cantrell says that the use of copaiba oil in the treatment of psoriasis has shown such good results in his hands that he wishes to record the following cases, in which other treatment had been employed without the slightest abatement of the trouble until the copaiba was used: In the first case, the patient, a woman twenty-nine years of age, had always been healthy until the appearance of the psoriasis, which had first attracted attention in her seventeenth year. The disease had spread rapidly over the entire body, and at the time the author saw her her condition was as follows: The eruption occupied a great portion of the body surface, the lesions being small and large, some of which had coalesced, making very large areas of affected skin. The lesions ranged in size from that of a pinhead to a patch or two which were about seven inches or more in diameter upon the back and chest, while those upon the abdomen were nearly as large. Those upon the extremities ranged from a pea-sized papule to lesions having a diameter of several inches, the latter of which had coalesced, forming an irregular lesion. All of the lesions were distinct, with abrupt edges, being covered with the characteristic silvery-white or mother-of-pearl imbricated scales. The girl stated, and she was corroborated by her physician, that the disease had had no abatement since it was first noticed, although she had never been without treatment for it. She came under the care of her present physician, and was immediately brought for the author's advice in the matter of treatment. He found that she had been under almost all forms of treatment; and as the arsenic which she had been taking had made no alteration in the skin manifestation, he advised her to place herself under strict observation, and to take five minims of oil of copaiba in capsules three times daily. A good nourishing diet and free access to open-air exercise were also prescribed. The case passed from his view, although he occasionally heard from the attending physician, and in the latter part of the sixth month of treatment the report was that she had not one lesion present, and, as that was some twelve or fourteen months ago, the author feels that the treatment is well worthy of attention. He thinks it well to make note of the fact that, as there were no distressing symptoms to the girl on account of itching, he did not advise any local measures, simply because she did not wish to be obliged to use ointments if there was a reasonable hope of her getting well without them, as that had been the main treatment which she had been under for the previous years, and she stated that it was very disagreeable to her.

In the second case the patient stated that the disease had existed for fifteen years, but that she had been continuously under the care of physicians, and that she had got some relief, but that the disease had never actually been cured. The eruption was found to occupy the back, the chest, and the head, and lesions were found scattered over the extremities. The lesions were papules as first witnessed, but they soon spread, until, at her visit to the author, he found some of the size of a banknote, while others had a diameter of seven or eight inches. The woman had always been in good health, and no one in her family had ever had the same condition. Since that time, however, the author has had her younger sister under treatment for the disease. When first seen by him he placed her upon five-minim doses of oil of copaiba, with instructions that she was to keep under strict treatment for at least three months, at which time he wished to see her again. She presented herself at the appointed time, when it was found that the condition was decidedly improved; in fact, there were no new lesions present, the old ones were faded in color, there was no scaling, and she was fairly comfortable. He saw her again only a few days before writing the article, and did not find a single lesion present, so that he felt that at last she had received the proper treatment. Her sister had not continued the treatment for more than a month, but all the lesions had disappeared, and there had been no return of them.

Goose Grease.—In the June number of the *Dublin Journal of Medical Science* Mr. Langford Symes, physician to the Kiltegan Dispensary, contributes an article in which he remarks upon the scarcity of the animal oils and oleaginous substances in the *British Pharmacopœia* in comparison with those derived from vegetables, and he calls attention to the properties of an oleaginous substance of peculiar penetrating power, which for many years had been well known in most households.

At present, he says, there are but three animal oleaginous substances in the *British Pharmacopœia:* Oleum morrhuæ, lard, and hydrous wool fat (lanolin). The one of which he writes, however, is more easily obtained than most oils and is already well known to the public as the plain goose grease. That this substance possesses valuable medicinal properties is, he thinks, beyond question. In affections of the chest it is a most excellent substance to apply alone. In bronchitis of the subchronic type, or in moderate catarrh, few liniments or other applications will be found to equal this *oleum anseris*, or goose grease. If a drachm or two of this grease is placed in the hand and a stimulating liniment poured thereon and rubbed on the skin, it will be carried into the tissues in a remarkable way.

During the late influenza epidemic the author frequently observed patients who were using this remedy for the cough, and noticed that they obtained benefit from its use. Where some bronchial trouble remains unresolved in the lungs, and that peculiar tenacious viscid secretion lies attached to its internal mucous vesicular wall, a stimulating liniment will be greatly helped by the addition of this grease. The liniment becomes much easier to rub in and appears to be more rapidly absorbed.

Mr. Symes relates the following case as an illustration: A gentleman was suffering with influenza of a "chronic" type. He was never ill enough to stay in bed, and scarcely well enough to be out. He had a dry hacking cough for many days, and very little secretion was expelled from his lungs, in which was lodged a small quantity of viscid exudation. With the aid of suitable internal remedies he gained ground very slowly. A liniment of camphor and ammonia was prescribed, but it did not help him very much. Goose grease was added and at once its effect became apparent. In a day or two, feeling much better, he omitted the use of the oil, and he became worse; but after repeating the applications great benefit followed. A second and third time he omitted the goose grease and the cough and the distress returned, but they were rapidly removed after another application of the oil. The patient is convinced of its efficacy and attributes his recovery mainly to its specific action on his chest.

Of its penetrating qualities, says Mr. Symes, there is no doubt. He has seen it remove muscular rheumatism in a marked way when rubbed in. Thickening near the joints after sprains or subacute rheumatic inflammation will be greatly benefited by its use. Another affection in which the author has seen marked benefit result from its employment is in wasting or marasmus. When rubbed into the abdomen and groins of young children it is a decided nutrient, and experience has convinced him of its efficacy when employed in this way. It can be eaten on bread with salt, and, if freshly prepared, is very palatable and nutritious. As a further illustration of its powers, he says, sportsmen affirm that it is not a good thing to be too liberally applied to guns, as it is far too penetrating, "eating or worming its way" into every crevice.

As a basis for liniments, or the softer kinds of ointment, when the effect is desired upon the underlying tissues, the author thinks that there is no better substance to "carry in" a drug to the deeper parts. It much exceeds lard in efficacy and, it possesses far greater permeating qualities than vegetable oils. It is liable, however, to become rancid, but the author has kept it for many weeks by the addition of some boric acid. Active drugs when incorporated with it and applied externally will be under the best conditions for permeation, and it will not lie on the surface unabsorbed as much as other oils do.

Its popularity, says Mr. Symes, seems to be confined to Ireland, and principally to the country districts; but he is so convinced that this substance is an excellent vehicle for the inunction of drugs in various diseases that he has considered it his duty to bring it forward to the notice of the medical profession.

Two Cases of Mumps Accompanied by an Eruption.—The *Nouveau Montpellier médical* for June 1st publishes an account by M. Merard of two cases of mumps that had come under the care of Professor Carrieu. The cases presented a remarkable peculiarity, the disease being accompanied by an eruption. The first case was that of a soldier who was admitted to the hospital on the 17th of April with chills, headache, and insomnia. On the 18th the parotid regions were tumefied; the genian prolongation of the parotids was increased in size, and the glandular congestion was very easily seen. The pain was rather pronounced. The submaxillary glands were not involved, and the fever was not high. The treatment consisted of inunctions of the parotid region. On the 19th the face was congested and the eyes were injected and watery. There was some nasal supersecretion, with bronchial catarrh. A morbillous eruption was noticed; the spots were of about the size of a grain of rice and slightly prominent, and disappeared on pressure. They were seen only on the body and the limbs. Deglutition was painful. The tonsils, the pillars of the fauces, and the palate were intensely congested. There was no ganglionic engorgement and no fever. On the 20th the condition of the patient was the same, and there was no albumin in the urine. On the 21st the eruption had lost its redness, there was apyrexia, and the catarrh of the mucous membranes had disappeared. On the 22d there was tumefaction of the parotid regions, with a little pain, and the angina persisted, although it was very slight. There was very little desquamation. From this time until the 2d of May the patient's condition remained the same, when the engorgement was very much diminished. The left testicle was painful, and in the evening the temperature rose to 103° F. On the 3d of May the left testicle was increased in size and very painful. The skin of the scrotum was red and tense; the temperature was 101·6° in the morning and 104·9° in the evening. On the 4th the testicular pain persisted, but the temperature had fallen to 101·6°. On the 5th there was apyrexia. On the 7th the testicular symptoms disappeared and the parotid regions regained their normal size. On the 10th recovery was complete.

The second case was also in a soldier who entered the hospital on the 17th of April with headache and lumbago. On the 18th the parotid engorgement was very marked. The submaxillary glands were not attacked. There was no ganglionic engorgement and no fever. The treatment was the same as that employed in the first case. On the 19th the face was congested. The eyes were watery, but there was no nasal or bronchial catarrh. Deglutition was difficult. The tonsils, the pillars of the fauces, and the velum of the palate were hyperæmic, and a morbillous eruption was observed, in every way resembling that in the preceding case. On the 20th there was no fever. On the 21st the eruption had nearly disappeared and the apyrexia continued. On the 22d there was slight desquamation, and the parotids had diminished in size. On the 25th the patient was completely cured.

The first case, says the author, was manifestly one of mumps, as was proved by the coincident orchitis accompanied by a high fever. With regard to the eruption, he asks, should it be attributed to an intercurrent measles which had broken out at that time in the regiment? Nothing would seem to warrant such a diagnosis, he says, because the fever was absent or only very slight up to the moment when the testicular symptoms appeared, when all symptoms of measles had disappeared. The course of the eruption also shows that it could not have been measles, as there was no trace of it on the face of the patient. None of the characteristics of this disease were present, and everything pointed to a mumps eruption.

The second patient presented no symptoms of orchitis. If, says M. Merard, as in the first case, we entertain the idea of measles in association, the apyrexia and the course of the eruption being taken into consideration, may we not see there the syndrome of simple rubeola with subauricular engorgement? It may also be added, he says, that it is the ganglia of the parotid that are attacked and not the parotid itself. The engorgement also is slight, not easily seen, and never becomes localized in the genian prolongation of the parotid.

In these cases there was no reason to suspect syphilitic roseola, and the medication was not of a nature to give rise to an eruption, therefore, says M. Merard, it must be concluded that the eruption was a cutaneous manifestation of the mumps. This, he says, is not at all surprising, as at the present day the exanthema of eruptive fevers is considered the result of the elimination by the skin of the toxines which are secreted by the infectious agent of the disease. In mumps the emunctories are the salivary glands, sometimes the testicles, and more rarely the breasts, the ovaries, and the lacrymal glands.

These mumps eruptions seem comparable to those which were observed during the epidemic of *grippe* in 1892 by Professor Carrieu. There is, however, a difference. The grippal eruptions are not met with except in the gastro-intestinal form of the disease. They appear to be due to the elimination of toxines produced in the digestive canal, the secretions of which are disturbed or altered, and not to the grippal toxines themselves. In the preceding cases of mumps, on the contrary, where the gastric disturbance was insignificant, the eruption clearly seemed to be due to the toxines themselves of the bacilli of Catrin.

Dissolving Views (Medico-Idyllic). By F. A. Burrall, M. D.:

When comets flaunt their caudate brands
And make the August furnace hotter,
When like fierce Unyanyembe's sands
Glow city walls from roof to gutter,
When dogs delight to bark and bite,
With Sirius beams upon them focused,
But find an end to grewsome fight
In murderous blows from watchman's locust,
Then where the mountains cast their shade,
Where silvery surfs the beaches hammer,
Where blends the brooklet with the glade,
Roam civic youth and civic maid
Away from civic dust and clamor.

As if confined in heated cell,
Sits a sad son of Æsculapius,
There's no escape he knows full well,
For him there is no *corpus habeas ;*
The fervid sun mounts up the sky,
And bids aloft the rising column—
It marks the nineties—with a sigh.
He smiles, but ah, that smile, how solemn!
There comes a vision from the north
Of ices, icebergs, congelation,
But what is all the fancy worth?
Its end is only perspiration.

So far, so near, anon he hears
The muffled drum beat at life's portal,
And waits for Nature's "Forward march"
Through mortal life to life immortal.
One weary brain with hopes and fears
And yearnings vague the hours encumbers,
Casts horoscopes for future years,
And weeps and smiles and wakes and slumbers.
Hark the bells!
Doctors' bells!
What of weal or what of woe their clamoring foretells!
Ringing out at night
When the moon is bright,
When the ground is white,
When the voices of the rain
Chat athwart the pane!
Ringing madly, whether
Foul or fair the weather,
Ringing as in grief
For relief,
Calling to the street
Weary feet—
Calling, pleading, urging,
Doctors' bells.

From pain to pain, from tears to tears,
To joys and tears kaleidoscopic,
To life with all its hopes and fears
I bid thee welcome, mite exotic,
Unfolded atom, choicest type
Of quickened protoplasmic essence,
Come, for the hour is fully ripe,
The world awaits thine expected presence!

Sic dixit Æsculapius, and
Half sadly, yet with cordial greeting,
He grasped the novice by the hand,
On this, the primal birthday meeting,
Begun the starward march, begun,
The swift-winged markings on the dial,
Life's tangled labyrinth begun,
Its hours of joy, its hours of trial.

Exit Æsculapius, and
Sleep fell on tired babe and mother,
The smaller in the larger hand,
Each clinging closely to the other.
As in a dream the doctor sees
Murillo's babe,* whose argent glory
Mingles with the angelic note
Of eastern clime and eastern story.

Out to the street, the still, gray street
Downward the drowsy moon is viewing,
Where fierce and feline warriors meet,
And bacillary hosts are stewing.
To home, to bed, to sleep; say who
Better than weary doctor knoweth
The rest which comes like heavenly dew,
The blessed balm which sleep bestoweth.

. . . .

A lake where fin and feather meet,
An air just right for oxygenation,
A rod, a gun, outfit complete,
A doctor, and a good vacation.

The New York County Medical Association held its general meeting on Monday evening, the 17th inst. The special order was as follows: State Medicine: The Physician as a Citizen, by Dr. Douglas H. Stewart (discussed by Dr. A. B. Deynard, Dr. Frank Van Fleet, Dr. C. B. White, Dr. G. D. McGauran, and others); Living Greek: the Language of Physicians and Scholars; a Language Easily Acquired, by Dr. Achilles Rose. Pathological specimens were presented.

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* The Dresden Madonna.

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PUBLISHED BY
D. APPLETON & CO., 72 Fifth Avenue, New York.

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